AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. Contract ID Code	Page	Of
Cost-Plus-Fixed-Fee	1	22

2. Amendment/Modification No.	3. Effective Date	4. Requisition/Purchase Req No.	5. Project No. (If applicable)
P00004	2004AUG27	SEE SCHEDULE	

6. Issued By Code W56HZV

TACOM WARREN
AMSTA-AQ-ABGD
PAM THORNTON (586)574-8899
WARREN, MICHIGAN 48397-5000
HTTP://CONTRACTING.TACOM.ARMY.MIL
EMAIL: THORNTOP@TACOM.ARMY.MIL

7. Administered By (If other than Item 6) Code S4404A

DCMA SAN ANTONIO
615 EAST HOUSTON STREET
P.O. BOX 1040
SAN ANTONIO TX 78294-1040

SCD C **PAS** NONE **ADP PT** HQ0339

8. Name And Address Of Contractor (No., Street, City, County, State and Zip Code)

SOUTHWEST RESEARCH INSTITUTE
6220 CULEBRA ROAD
SAN ANTONIO, TX. 78238-0510

TYPE BUSINESS: Other Nonprofit

Code 26401 **Facility Code**

☐ **9A. Amendment Of Solicitation No.**

9B. Dated (See Item 11)

☒ **10A. Modification Of Contract/Order No.**
DAAE07-03-C-L090

10B. Dated (See Item 13)
2003APR21

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ **The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers**
☐ **is extended,** ☐ **is not extended.**

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing items 8 and 15, and returning _____ copies of the amendments: (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. Accounting And Appropriation Data (If required) Payment will be made by Electronic Funds Transfer
ACRN: AC NET INCREASE: $1,000,000.00

13. THIS ITEM ONLY APPLIES TO MODIFICATIONS OF CONTRACTS/ORDERS

KIND MOD CODE: G

It Modifies The Contract/Order No. As Described In Item 14.

☐	**A. This Change Order is Issued Pursuant To: The Changes Set Forth In Item 14 Are Made In The Contract/Order No. In Item 10A.**
☐	**B. The Above Numbered Contract/Order Is Modified To Reflect The Administrative Changes (such as changes in paying office, appropriation data, etc.) Set Forth In Item 14, Pursuant To The Authority of FAR 43.103(b).**
☒	**C. This Supplemental Agreement Is Entered Into Pursuant To Authority Of:** FAR 52.243-2 CHANGES-Alt. V
☐	**D. Other (Specify type of modification and authority)**

E. IMPORTANT: Contractor ☐ **is not,** ☒ **is required to sign this document and return _____ copies to the Issuing Office.**

14. Description Of Amendment/Modification (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

SEE SECOND PAGE FOR DESCRIPTION

Except as provided herein, all terms and conditions of the document referenced in item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. Name And Title Of Signer (Type or print)		16A. Name And Title Of Contracting Officer (Type or print)	
		MICHAEL L. CIONI CIONIM@TACOM.ARMY.MIL (586)574-7070	
15B. Contractor/Offeror	**15C. Date Signed**	**16B. United States Of America**	**16C. Date Signed**
_____ **(Signature of person authorized to sign)**		**By** /SIGNED/ **(Signature of Contracting Officer)**	2004AUG27

SECTION A - SUPPLEMENTAL INFORMATION

PROGRAM: Rapidly Installed Fluid Transfer System (RIFTS)

PURPOSE OF MODIFICATION: Incorporate changes to the Statement of Work, and incrementally fund the priced change.

PREVIOUS NEGOTIATED CONTRACT VALUE: $ 9,640,919.00

NEGOTIATED VALUE THIS ACTION: $ 1,065,872.00

TOTAL NEGOTIATED CONTRACT VALUE: $10,706,791.00

PREVIOUS OBLIGATED CONTRACT AMOUNT: $ 9,640,919.00

OBLIGATED AMOUNT THIS ACTION: $ 1,000,000.00

TOTAL OBLIGATED CONTRACT AMOUNT: $10,640,919.00

1. This is a bilateral modification, issued pursuant to the Contract Clause, Changes-Cost Reimbursement (Alternate V), FAR 52.243-2.

2. The purpose of this modification P00004 is to incorporate changes to the statement of work for expanded Logistics Support and provide incremental funding for the revised effort.

3. The Contract is modified as follows:

a. The following statement of work paragraphs are revised:

C.1.2 Objective
C.2.1.2 Contract Work Breakdown Structure (CWBS) for RIFTS
C.2.4 Training.
C.2.4.1 Training Materials
C.2.4.1.2 Lesson Guide.

b. The following statement of work paragraphs are added:

C.1.3 BACKGROUND, including C.1.3.1 and C.1.3.2;
C.2.1.3 Program Management, Logistics and Contract Status Review and C.2.1.3.1 Documentation;
C.2.2.6.2 Integration of C2M Government Furnished Environmental Shelter;
C.2.2.8 Transportability;
C.2.3.4 Production Qualification Test (PQT)/Limited User Test (LUT) for RIFTS Block I;
C.2.3.4.1 Hardware Delivery;
C.2.3.4.2 Emergency Parts in Support of Testing;
C.2.3.4.3 Failure Analysis and Corrective Actions;
C 2.3.4.4 Technical Maintenance Support (during Government Testing);
C.2.3.4.5 Return of End Item/SSP after Tests;
C.2.5.3 Integrated Logistics Support (ILS) for RIFTS Block I and C.2.5.3.1 Applicable Documents;
C.2.5.3.2 Objective;
C.2.5.3.3 ILS Management, including: C.2.5.3.3.1 ILS Start of Work Meeting and C.2.5.3.3.2 ILS Technical Guidance Meetings;
C.2.5.3.4 Logistic Support Analysis;
C.2.5.3.4.1 Maintenance Analysis and Planning, with C.2.5.3.4.1.1, a, b & c; and C.2.5.3.4.1.2 Level of Repair Analysis;
C.2.5.3.4.2 Supportability Analysis;
C.2.5.3.5 Maintenance Allocation Chart (MAC);
C.2.5.3.6 Technical Publications, subparagraphs C.2.5.3.6.1 and C.2.5.3.6.1.1 through C.2.5.3.6.1.3;
C.2.5.3.6.2 Repair Parts and Special Tools List (RPSTL), subparagraphs C.2.5.3.6.2.1 and C.2.5.3.6.2.2;
C.2.5.3.6.3 Basic Issue Items List (BIIL);
C.2.5.3.6.4 Component of End Item List (COEI);
C.2.5.3.6.5 Support Equipment Tools and Test Equipment (STTE);
C.2.5.3.7 System Support Package Component List (SSPCL);
C.2.5.3.8 Logistics Demonstration and Plan for RIFTS Block I;
C.2.5.3.8.1 Logistics Demonstration Plan; and
C.2.5.3.8.2 Logistics Demonstration (LD).

c. The RIFTS System Performance Specification, attachment 001, paragraph 3.3.4.1, Operational Temperature, is revised as follows: from "The RIFTS shall be capable of continuous operation over the ambient temperature range of -25 F to 120 F." to "The RIFTS shall be capable of continuous operation over the ambient temperature range of -25 degrees F to 135 degrees F."

d. The following Contract Data Requirements Lists (CDRLs) are revised:

Data Item A007, Training Materials, Training Course Outline, the distribution is revised from: LC-CIFS/104 to LC-LFE/104 manorm@tacom.army.mil, LiReb@tacom.army.mil and lamkyd@tacom.army.mil

Data Item A008, Training Material, Lesson Guides, the distribution is revised from: LC-CIFS/104 to LC-LFE/104 manorm@tacom.army.mil, LiReb@tacom.army.mil and lamkyd@tacom.army.mil and block 15 "Remarks" is revised from: "Submit the draft materials 45 days prior to training" to "Submit the draft materials 60 days prior to training."

e. The following Data Items are added to the Contract Data Requirements Lists (CDRLs): A010 through A024.

f. The following attachments are added:

Attachment 005, Publications Requirements
Attachment 006, Maintenance Analysis
Attachment 007, RPSTL Instructions

g. CLIN 0001 is revised to reflect the changes to the Estimated Cost, Fixed Fee, and Total Cost; CLIN 000107 is established in the amount of $1,000,000.00.

h. Paragraph B.3, "Funding Schedule" is revised to reflect an increase to the amount of funds obligated under the contract by $1,000,000.00 from $9,640,919.00 to $10,640,919.00.

i. Section G, "Contract Administration Data" is updated to reflect the added "Accounting and Appropriation" data.

j. Section J, "List of Attachments" is revised to reflect the updated Attachment 001, System Performance Specification (R1) and the updated Attachment 004, Contract Data Requirements List.

4. As a result of paragraphs 3.a and 3.b above, the previous Section C, Description/Specifications/Work Statement, is hereby deleted in its entirety and is replaced with the attached Section C.

5. As a result of paragraph 3.c above, the previous RIFTS System Performance Specification, Attachment 001, is hereby deleted in its entirety and is replaced with the attached RIFTS System Performance Specification, Attachment 001.

6. As a result of paragraphs 3.d and 3.e above, the previous Contract Data Requirements List, Attachment 004, is hereby deleted in its entirety and is replaced with the attached Contract Data Requirements List.

7. As a result of this modification, the total negotiated value of the contract is hereby increased by $1,065,872.00 from $9,640,919.00 to $10,706,791.00 (which includes an increase in fee of $44,912.00.)

8. The contractor agrees that the "negotiated value of this action" is a complete and final equitable adjustment for the changes incorporated by this modification P00004, and the contractor releases the Government from any and all liability under this contract for any further equitable adjustment attributable to the facts or circumstances giving rise to this modification P00004.

9. Except as provided herein, all other terms and conditions remain unchanged.

*** END OF NARRATIVE A 004 ***

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS				
0001	RIFTS NOUN: RIFTS TECHNOLOGY DEMONSTRATOR SECURITY CLASS: Unclassified Contractor shall furnish all the supplies and services to accomplish the task specified in Section C Scope of Work (This includes Basic & exercised Options: Option 4, additional 5 each ERDs Option 9, additional 10 Miles High Pressure Conduit) Estimated Cost: $10,248,733.00 Fixed Fee: $ 458,058.00 Total Cost: $10,706,791.00 (End of narrative B001) Inspection and Acceptance INSPECTION: Origin ACCEPTANCE: Origin Deliveries or Performance DLVR SCH REL CD: 001 — QUANTITY: 1 — PERF COMPL DATE: 31-MAR-2006 $ 10,706,791.00	1	LO		$ 10,706,791.00
000101	RIFTS NOUN: RIFTS PRON: E132C259EH PRON AMD: 03 ACRN: AA AMS CD: 643804K4100 (AMOUNT: $ 2,000,000.00)				
000102	RIFTS NOUN: RIFTS PRON: E132C260EH PRON AMD: 03 ACRN: AB AMS CD: 654804L4100 (AMOUNT: $ 2,651,499.00)				

Name of Offeror or Contractor: SOUTHWEST RESEARCH INSTITUTE

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000103	RIFTS NOUN: RIFTS-HIGH PRESSURE TEST PRON: P146R0112T PRON AMD: 01 ACRN: AC AMS CD: 654804L4100 (AMOUNT: $ 590,000.00)				
000104	RIFTS NOUN: RIFTS DAAE07-03-C-L090 PRON: P146RC182T PRON AMD: 01 ACRN: AC AMS CD: 654804L4100 (AMOUNT: $ 428,442.00)				
000105	RIFTS NOUN: RIFTS CONTRACT OPTIONS PRON: P146RC202T PRON AMD: 01 ACRN: AC AMS CD: 654804L4100 (AMOUNT: $ 1,380,061.00)				
000106	RIFTS NOUN: RIFTS CONTRACT OPTIONS PRON: P146RC202T PRON AMD: 01 ACRN: AC AMS CD: 654804L4100 (AMOUNT: $ 2,590,917.00)				
000107	RIFTS NOUN: RIFTS - ILS CONTRACT PRON: P146RC212T PRON AMD: 01 ACRN: AC AMS CD: 654804L4100 (AMOUNT: $ 1,000,000.00)				

B.3 Funding Schedule

B.3.1 The Government shall provide funds under this contract covering the estimated cost and fee hereof on an incremental basis as provided for in the following funding schedule and pursuant to the Contract Clause entitled LIMITATION OF FUNDS. It is estimated that the incremental amounts are sufficient for the performance of work in each of the cited periods. The Government may, at its discretion, allot such funds on an incremental basis within each fiscal year. The contractor shall so plan and execute the work required by this contract as to expend and/or commit funds compatible with the schedule set forth below. Whenever the contractor has reason to believe that the funds allotted to this contract for any fiscal year are either insufficient or excessive for the performance of work required in that fiscal year, the Government shall be so notified.

B.3.2 Funding Schedule

Performance Period	Amount
FY03 - Award through September 2003	$4,651,499.00
FY04 - October 2003 through December 2003	$ 590,000.00
January 2004 through March 2004	$ 428,442.00
April 2004 through May 2004	$3,970,978.00
June 2004 through September 2004	$1,000,000.00
FY05 - October 2004 through Completion	$ 65,872.00

B.3.3 Funds Allotted. The amount of funds currently allotted to this contract is $10,640,919.00. (Revised per P00004)

*** END OF NARRATIVE B 003 ***

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C.1. INTRODUCTION.

C.1.1 Scope:

This Statement of Work (SOW) describes research, prototype production, development and engineering services the contractor shall provide for the Rapidly Installed Fluid Transfer System (RIFTS). These services include Design and Fabrication of component Prototypes, Engineering Support, Safety and Environmental Assessment, Performance Specification, and Testing and Testing Support.

C.1.2 Objective:

The objective is for the contractor to build a full size Technology Demonstrator Model (TDM) of the RIFTS components, integrate and demonstrate all RIFTS components to work as a baseline RIFTS complete system. The baseline system is composed of a minimum of 5 miles of conduit with the associated Emplacement and Retrieval Devices (ERDs), at least one Automated Pumping Station (APS), and one Command and Control Module (C2M) integrated into a Government furnished C2M Shelter. The contractor shall include support equipment with the above hardware, consisting of a displacement and evacuation kit (to demonstrate the ability to displace fuel and evacuate the conduit prior to retrieval), and a Conduit Repair kit (to demonstrate field repairability) as described in the Performance Specification (Attachment 001, sections 3.3.2.2 and 3.3.2.1). Upon the completion of the TDM testing and demonstration, the contractor shall prepare a draft RIFTS performance specification for use by TACOM in the next developmental phase of the program.

C.1.3 BACKGROUND: The Government plans to develop RIFTS capabilities incrementally, herein described as RIFTS Block I and RIFTS Block II. The incremental development provides the means to accelerate the production and fielding of critical RIFTS Block I modules while continuing to develop and integrate new technologies with the RIFTS Block II to enhance overall RIFTS capabilities and performance.

C.1.3.1 RIFTS Block I. Block I includes the development of RIFTS conduit (a.k.a. high pressure hose line) and the Employment and Retrieval Device (ERD, commonly referred to as the hose reel). RIFTS Block I is for use in the transfer and dispensing of liquid products and will be integrated and incorporated with existing Inland Petroleum Distribution System (IPDS) components (pipe, 800 Gallons per minute (GPM) mainline pump stations and Tactical Petroleum Terminals (TPTs) to provide an interim system solution. RIFTS Block I will include all support equipment necessary for the emplacement, operation, evacuation, recovery and maintenance of the system to support the fluid transfer mission. (MODIFICATION P00004 INCORPORATES BLOCK I REQUIREMENTS.)

C.1.3.2 RIFTS Block II. Block II includes the development of high capacity automated pump stations (APS), (which will replace the IPDS mainline pump stations used in Block I) a leak detection system, the Command and Control Module (C2M), and a Computer-based Trace Planning Aid (RIFTS Automated Trace Locator - RATL).

C.2. REQUIREMENTS

The contractor shall establish and maintain management operations that include project management and system engineering management. Project management consists of those activities to plan, organize, and direct all work to accomplish the objectives of the contract, to control costs within the estimated contract cost, to identify impending problems (i.e., technical, schedule, cost) as early as possible, and to deliver data and hardware on schedule. System engineering management consists of those activities to control the total system development effort for the purpose of achieving an optimum balance of all system elements.

C.2.1 Project Management:

C.2.1.1 C/SSR Report

C.2.1.1.1 The contractor shall prepare and submit the Cost/Schedule Status Report (C/SSR) in accordance with (IAW) Data Item No. A001. The Contract Work Breakdown Structure (CWBS) as defined in C.2.1.2 shall be used by the contractor as the framework for managing and reporting project costs. The contractor shall report in writing to the Contracting Officer any change made to the cost and schedule management system which will affect the C/SSR data during the performance of the contract. The contractor shall provide an analysis and narrative explanation when the cost or schedule variance reported in the C/SSR for any CWBS element exceeds 10% over the costs identified in its cost proposal dated April 4, 2003. Each C/SSR narrative report shall also cover all program activities for the reporting period and shall provide a forecast of work to be accomplished during the upcoming period. Contents shall include status and progress towards all open milestones that are active or scheduled to become active according to the Program Milestone Chart the contractor presents at the Start of Work meeting.

C.2.1.2 Contract Work Breakdown Structure (CWBS) for RIFTS

C.2.1.2.1 The CWBS is provided below. Throughout contract performance, the contractor may propose changes to the CWBS to enhance its effectiveness in satisfying program objectives. The contractor shall further break down the CWBS to represent how it plans to accomplish the entire contract work scope and present the detail at the Start of Work meeting described in paragraph C.2.2.1.2. The contractor's detailed CWBS will serve as the framework for contract planning, budgeting and reporting of cost and schedule status to the Government.

CWBS
A. Conduit Module, including:
(1) Conduit
(2) Emplacement and Retrieval Device (ERD)
B. Automated Pumping Station (APS),
C. Command and Control Module (C2M) (includes leak detectionand includes C2M integrated into Government furnished shelter)
D. Computer Based Planning Aid (reserved)
E. Support Equipment,
F. Program Management/System Engineering
G. Training
H. Test & Evaluation
I. Integrated Logistics Support (ILS)

C.2.1.3 Program Management, Logistics and Contract Status Review. As part of the overall program management, the Contractor shall at a minimum conduct quarterly review meetings with Government Program Management Officials; the reviews may be held more frequently if program needs warrant. These reviews are anticipated to be one eight-hour day each. Topics to be discussed shall include, but not be limited to, review of open action items, program status, contract status, preparation for testing, and ILS (e.g. maintenance, publications, and training development). An agenda shall be developed jointly between the Government and the Contractor at least fifteen (15) days prior to each meeting. The meeting location will alternate between the Government and Contractor location and will be determined during the development of the agenda.

C.2.1.3.1 Documentation. The Contractor shall prepare minutes of the above meeting in accordance with CDRL A010, and deliver to the COR within five (5) days after the meeting. These minutes shall include a list of action items discussed at the conclusion of the meeting (listing the Requestor of the Action, the Action, the Action Office, Point of Contact, Suspense Date and Status of the Action).

*** END OF NARRATIVE C 001 ***

C.2.2 System Engineering

C.2.2.a The contractor shall analyze the system functions and performance requirements stipulated in the RIFTS System Performance Specification (Attachment 001). The contractor shall use a system approach in the accomplishment of design, engineering, development, and manufacturing efforts, which in turn shall help ensure that system requirements are met. System Engineering activities shall take into account maintenance, repair, operational support requirements and overall life cycle costs.

C.2.2.b The performance specification (Attachment 001) lists all the RIFTS requirements. However, for the scope of this contract, some of the RIFTS performance specifications are objectives, but not strict requirements to be demonstrated in the RIFTS TDM. The RIFTS TDM Requirement List (Attachment 002) identifies the RIFTS TDM requirements and objectives. Although the contractor is not required to build to the objective specification, it shall take both the required and objective specifications into its design considerations.

C.2.2.1 Technical Reviews.

As described in paragraphs C.2.2.1.2 through C.2.2.1.7 the contractor shall conduct formal technical reviews to provide the Government the means to assess the progress of the total technical effort and to address identified program issues and risks. Technical reviews shall be conducted at the contractor's facility; however, when jointly agreed upon between the contractor and the COTR, a technical review may be held at an alternative location. The minimum required reviews are described in paragraphs C.2.2.1.2 through C.2.2.1.8. However, the Government reserves the right to call informal reviews as deemed necessary during the course of this contract.

C.2.2.1.1 Resources and Materials.

The contractor shall provide the following resources and materials to conduct each review effectively:

(a) Conference agenda.
(b) Conference room(s) for approximately 15 personnel.
(c) Applicable systems engineering data, specifications, drawings, manuals, schedules, and design data.
(d) Mockups, breadboards, in-process hardware, and finished hardware.
(e) Test methods and data.
(f) Conference minutes.

C.2.2.1.2 Start of Work Meeting

The contractor shall conduct a Start of Work Meeting within 21 days after contract award at the contractor's facility. The contractor shall at a minimum provide program overview and a program milestone chart.

C.2.2.1.3 System Requirements Review (SRR)

The contractor shall conduct a SRR in conjunction with the Start of Work Meeting. The contractor shall present a high-level overview of system design and requirements at the SRR to ensure both the contractor's and the Government representatives have a clear understanding of all the technical requirements.

C.2.2.1.4 System Specification Review (SSR)

The contractor shall prepare and submit to the COTR component performance specifications for the APS, C2M, ERD and conduit components of the system. The contractor and the Government shall hold a SSR meeting (teleconference) 45 days after contract award to review each specification before it is released to potential subcontract bidders. The component performance specifications shall be submitted to the COTR electronically 1-2 days prior to the scheduled teleconference.

C.2.2.1.5 Integrated Baseline Review (IBR)

The contractor shall conduct an IBR at its facility within 60 days after contract award. The contractor shall present the contents and underlying assumptions of its time-phased performance measurement baseline to government representatives at the IBR to ensure that both the contractor and the Government representatives understand the programmatic requirements.

C.2.2.1.6 Preliminary Design Review (PDR)
The contractor shall host a PDR meeting approximately eight (8) months after contract award to present candidate options for RIFTS implementation on each of the RIFTS components, or on the specific component implementation designs. Each candidate option shall include recommendations and tradeoffs so that a decision to proceed can be made at the conclusion of the PDR meeting.

C.2.2.1.7 Critical Design Review (CDR)
The contractor shall conduct a CDR for each of the major RIFTS components at the completion of the detailed design effort and drawings for procuring or fabricating the components. The first CDR shall be held approximately eight (8) months after contract award and shall be concurrent with the PDR. The detailed designs from CDR review(s) serves as a basis for fabrication of the RIFTS elements.

C.2.2.1.8 Test Readiness Review (TRR)

The contractor shall conduct a TRR prior to the start of the contractor system-level testing of the RIFTS TDM.

C.2.2.2 Design Considerations

The contractor shall include following areas as an integral part of the system engineering design process and make recommendations regarding the level or standard necessary for each area and how to best attain them. Recommendations for these areas shall be presented in design reviews. Further, the contractor shall identify which of the following it is implementing in the RIFTS TDM and to what extent; those not implemented in the TDM shall be identified and described for a future production RIFTS and included in the final report.

(a) Environmental protection and Corrosion prevention;
(b) Health Hazard Assessments and Risk Mitigation;
(c) Preservation, Packaging, and Packing;
(d) Reliability, Availability, and Maintainability (RAM);
(e) Safety (see C.2.2.4, below);
(f) Security consideration;
(g) Manpower and Personnel Integration (MANPRINT) (see C.2.2.3, below);
(h) Supportability.

C.2.2.3 Human Factors Engineering (HFE).

The Contractor shall address the operating personnel and HFE requirements of the performance specification described in paragraph 3.6 of the Performance Specification in the PDR and CDR reviews. The Contractor shall address the following issues: manpower requirements, MOS and skill levels, use and manipulation of controls, operator and user accessibility to components and controls, workflow illumination, noise, storage for mission related items, operational compatibility with personal protective clothing and equipment, and component weight and lifting limitations. The Contractor shall demonstrate the adequacy of operator and user accessibility and layout of the RIFTS TDM within the confines of the employment vehicles described in 3.3.3.5 of the Performance Specification and immediate area during deployment.

C.2.2.4 Safety Engineering and Health Hazards

C.2.2.4.1 Safety Engineering Principles.

The contractor shall use MIL-STD-882D in determining whether safety engineering objectives of the Performance Specification paragraphs 3.5.1 and 3.5.2 are met. As a minimum, the contractor shall do the following:

(a) Identify hazards associated with the system by conducting a safety analysis and hazard evaluation. Analysis shall include both operational and maintenance aspects of the RIFTS.

(b) Eliminate or reduce significant hazards by appropriate design or material selection. If hazards to personnel cannot be avoided or eliminated, take steps to control or minimize those hazards.

C.2.2.4.2 Safety Assessment Report (SAR).

As a result of system safety analyses, hazard evaluations, and other contractor testing described in C.2.3.2, the contractor shall perform and document a safety and health hazard assessment. The safety (and health hazard) assessment shall identify all safety features of the hardware, system design and inherent hazards and shall establish special procedures and/or precautions to be observed by Government test agencies and system users. The contractor shall prepare the Safety Assessment Report IAW Data Item No. A002 and DI-SAFT-80102B. The contractor shall identify Health Hazards associated with the system and incorporate them into the SAR. The contractor shall use MIL-STD-882D in the preparation of the Safety Assessment Report and Health Hazard Assessment. In preparing the health hazard portion of the Safety Assessment Report, the contractor shall provide a description and discussion of each potential or actual health hazard issue for each subsystem or component. A health hazard is an existing or likely condition, inherent to the operation, maintenance, transport or use of materiel that can cause death, injury, acute or chronic illness, disability, or reduced job performance of personnel by exposure to physiological stresses. For each health hazard, the contractor shall include classification of severity and probability of occurrence, and when the hazards may be expected under normal or unusual operating or maintenance conditions. Include in the SAR copies of Material Safety Data Sheets (MSDS) for any hazardous materials incorporated into the system. Examples of hazards to be included in the report are fire prevention issues, electrical issues and noise. The contractor shall deliver a draft SAR to the email addresses identified in CDRL A002, 120 days prior to training described in paragraph C.2.4 of this contract. TACOM will review and provide comment within 30 days after receipt. The contractor shall deliver the final SAR to TACOM within 30 days after receipt of comments. The final SAR is subject to Government approval.

C.2.2.5 Environmental Requirements

C.2.2.5.1 The Contractor shall not use asbestos, cadmium, hexavalent chromium, Class I or Class II Ozone-Depleting Substances, or other highly toxic or carcinogenic materials in the RIFTS design or in the RIFTS TDM without prior written Government approval. The contractor shall not use materials identified in the Registry of Toxic Effects of Chemical Substances, published by the National Institute for Occupational Safety and Health, as materials that will produce toxic effects via the respiratory tract, eye, skin or mouth. The contractor may use moderately toxic materials as defined in the registry, provided the design and control preclude personnel operating the RIFTS or RIFTS TDM from being exposed to environments in excess of that specified in 29 CFR 1910, Occupational Safety and Heath Standards.

C.2.2.5.2 The contractor shall ensure all aspects of the contract execution are in compliance with Federal, State and Local environmental regulations and requirements. The contractor shall immediately notify the Contracting Officer if the Government gives any direction that could result in permit violations.

C.2.2.5.3 The contractor shall prepare a Hazardous Material Report that at a minimum (i) identifies all hazardous materials and processes required for system fabrication and sustainment, and (ii) identifies those hazardous materials and processes for which non-hazardous substitute(s) may be available. The Hazardous Material Report shall be included as a separate section in the Final Scientific and Technical Report.

C.2.2.6 Fabrication and Integration

C.2.2.6.1 After the CDR described in paragraph C.2.2.1.7, the Contractor shall proceed to procure materials, fabricate and assemble RIFTS components and integrate them into a fully functional TDM baseline system. Fabrication shall be in accordance with the design configuration reviewed at the Critical Design Review. Any design changes from the approved configuration that are likely to degrade baseline system performance or increase cost shall be immediately reported to the COR for review and approval.

C.2.2.6.2 Integration of C2M Government Furnished Environmental Shelter. The COR will provide an environmental shelter for C2M to the contractor within 90 days after award of modification P00004. The contractor shall integrate the Government furnished environmental shelter with the Command and Control Module (C2M). The contractor shall ensure proper mounting of computer systems and displays, adequate power supply and connections for the C2M operation, adequate interior lighting, and adequate workspace for soldier of average size to comfortably operate the C2M without in interference. Contractor Testing required by paragraph C.2.3.2 shall apply.

C.2.2.7 Technical Documentation

C.2.2.7.1 System Performance Specification

The contractor shall prepare a new System Performance Specification by updating the System Performance Specification (Attachment 001) requirements to include technical information from the lessons learned resulting from the accomplishments of this SOW. The specification shall state all necessary requirements in terms of performance. The specification shall specify all of the required functional characteristics of each component and shall specify all tests required to demonstrate achievement of those characteristics. The contractor shall use MIL-STD-961 to prepare the specification IAW Data Item No. A003. The specification shall contain a detachable appendix that serves as a companion document to the system performance specification that describes the rationale behind each requirement for future reference.

C.2.2.7.2 Final Report

Upon completion of the entire effort, contractor shall provide a report IAW Data Item No. A004 that addresses the technical approach, the advantages and deficiencies of the RIFTS TDM approach, the testing results, recommendations for improvements, and any other pertinent information that will help carry out the next developmental phase of RIFTS.

2.2.7.3 Drawings
Contractor shall furnish all as-built drawings (showing form, fit and function) used in performance for this contract, including those subcontracted components, to the COR IAW Data Item A005. Drawings developed by the contractor or subcontractors under this contract shall be delivered to the Government. Contractor format is acceptable.

C.2.2.8 Transportability. The Contractor shall conduct transportability analysis to ensure the requirements in the systems performance specification, Attachment 1, paragraph 3.4.1 are satisfied. The Contractor shall document the results of the analysis in a Transportability Report in accordance with CDRL A011 and provide the initial draft Transportation Report to the COR no later than 60 days prior to LUT, with updates as defined on the CDRL.

*** END OF NARRATIVE C 002 ***

C.2.3 Testing

C.2.3.1 Test Plan

The contractor shall develop a comprehensive RIFTS test plan that provides sufficient testing of the TDM to adequately demonstrate all required TDM specifications are met. The contractor shall determine the extent of the test program and the resources required to support testing. The contractor shall identify and develop the test criteria, test procedures, data collection methods and data analysis techniques it will use to test the fully assembled RIFTS TDM. The contractor shall submit the draft test plan to the COTR IAW Data Item No. A006, 90 days prior to the TRR described in paragraph C.2.2.1.8. The Government has 30 days to review the draft test plan and provide comments. The contractor shall deliver the final test plan within five (5) days after receipt of Government comments.

C.2.3.2 Contractor Testing

Contractor shall conduct performance testing IAW the Government approved test plan described in paragraph C.2.3.1. The contractor shall provide all necessary resources to support test. The contractor shall demonstrate and validate that the capabilities of every TDM system component are met IAW the System Performance Specification (Attachment 001) and the RIFTS TDM Requirement List (Attachment 002). In addition, contractor shall perform testing of parts, components, and assemblies as follows:

(a) Conduit: The contractor shall perform burst test and hydrostatic test in accordance with ASTM D380. Contractor shall also provide conduit capabilities for abrasion resistance, ozone resistance, and aging resistance in accordance with the applicable ASTM methods.

(b) Configuration: The contractor shall perform supporting engineering analysis as described in the Performance Specification to show the stacking capability of each module.

(c) Transportability: The contractor shall examine and assess the transportability characteristics of the RIFTS TDM to ensure requirements in the performance specification, paragraph 3.4.1, are satisfied.

C.2.3.3 Test Data Collection and Analysis.

The contractor shall conduct all system level testing in accordance with the approved test plan. The contractor shall collect and document all test data, test incidents, and corrective actions taken. The contractor shall analyze and evaluate the test data in accordance with the approved test plan and shall document the results in the Test Report Section of the Final Report.

C.2.3.4 Production Qualification Test (PQT)/Limited User Test (LUT) for RIFTS Block I. The Government will conduct a Production Qualification Test (PQT) (starting June 2005) at Yuma Proving Grounds, AZ on RIFTS Block I components. Total duration of Government PQT will be approximately 120 days. Following the PQT, the Government will conduct a Limited User Test (LUT) (starting November 2005) at Yuma Proving Grounds, AZ on the RIFTS Block I components. Total duration of LUT will be approximately 30 days.

C.2.3.4.1 Hardware Delivery. The Contractor shall prepare for shipment and deliver the RIFTS Block I components consisting of ten (10) ERDs and conduit and the System Support Package (SSP) to Yuma Proving Ground to arrive no later than five (5) business days prior to the start of testing, in support of the PQT and LUT. If any re-testing is necessary, the Contractor shall provide the necessary SSP items to support the retest. Following completion of testing, the COR will provide disposition instructions for unused SSP items. The approved SSP component listing (see paragraph C.2.5.3.7) shall identify the items and quantities required.

C.2.3.4.2 Emergency Parts in Support of Testing. The Contractor shall provide replacements parts to effect field maintenance (paragraph C.2.5.3.4.1.1) repairs during testing (either parts not included in the SSP or in insufficient quantities) within 48 hours of notification by the COR.

C.2.3.4.3 Failure Analysis and Corrective Actions. The Government will prepare Test Incident Reports (TIR) during the PQT and LUT. The Contractor shall respond to each TIR with a Failure Analysis and Corrective Action Report (FACAR) in accordance with CDRL A012. The Contractor shall implement corrective actions upon COR approval and direction.

C 2.3.4.4 Technical Maintenance Support (during Government Testing). The Contractor shall provide on site field service within one (1) day (24 hours) after being requested by the COR. The Contractor shall provide skilled maintenance personnel, tools, support equipment and parts, to identify and correct equipment failures that may occur during testing by performing sustainment maintenance repairs (paragraph C.2.5.3.4.1.1) and emergency field maintenance repairs.

C.2.3.4.5 Return of End Item/SSP after Tests. Within five (5) days after completion of testing, the Contractor shall prepare for shipment and return all assets to the Contractor facility unless the COR provides alternate disposition instructions, in which case the contractor shall deliver the assets to the alternate location.

*** END OF NARRATIVE C 003 ***

C.2.4 Training. The Contractor shall develop course training materials and conduct one class that includes both the RIFTS Block I and the RIFTS TDM. Training covering RIFTS Block I shall include procedures for the Operation and Field Maintenance and the RIFTS TDM shall include procedures for operation and operator Maintenance. At a minimum, the training will cover the operation, Preventative Maintenance Checks and Services (PMCS) for operator and operator maintenance for both the TDM and RIFTS Block I, and field level maintenance of the RIFTS Block I, such as conduit repair. Trainees may consist of Government civilian and military personnel. Class size will be approximately 30 people. Training shall last approximately five (5) days and be held at the Contractor's facility (however, when jointly agreed upon between the Contractor and the COTR, the class may be held at an alternate location). The training shall include all necessary equipment to support Block I and TDM operation, including the interface of RIFTS Block I with the HEMTT LHS, IPDS Equipment and Pumps. The contractor shall provide a copy of all course material to each student. The COR will provide the exact start date of the class at least 30 days prior to the start of the class. The contractor shall complete training shall prior to PQT, LD, LUT and TDM Demonstration.

C.2.4.1 Training Materials. The Contractor shall have all the RIFTS TDM, RIFTS Block I components and the associated support equipment at the training site at least five (5) days prior to the start of training. This includes technical manuals, all lesson materials, training literature, training aids, special tools & test equipment, and all other tools necessary to dissemble and assemble the equipment.

C.2.4.1.1 Training Course Outline

The contractor shall deliver a training course outline IAW Data Item No. A007 to TACOM to the email listed in the data item. The outline is a schedule of events and topics covered and shall include a breakdown of individual topics showing the time allotted, list materials required (TV, VCR, etc.), facility requirements, identify reference materials, list the type of instruction (practical exercise, lecture, demonstration, video, etc), and show tools required for each topic. Commercial format is acceptable.

C.2.4.1.2 Lesson Guide

The Contractor shall develop and deliver a lesson guide that covers both the operation and operator maintenance tasks IAW Data Item No. A008. Training materials shall contain equipment and component description, functional data, operation, setup and disassembly, inspection, testing, troubleshooting, and safety procedures for both the RIFTS TDM and RIFTS Block I. In addition, RIFTS Block I training shall include the Field Maintenance procedures. The Contractor shall provide a copy of the lesson guide to each student in the training class. The contractor shall deliver a draft copy of the lesson guide and materials to the COR in an editable digital format 60 days prior to training for review and approval by the COR, in accordance with CDRL A008.

*** END OF NARRATIVE C 004 ***

C.2.5 Logistic Support

C.2.5.1 Logistic Support during User Demonstration.

The contractor shall provide all necessary materials and equipment for logistic support of one TDM user demonstration. The demonstration will be performed by trained Government personnel. The contractor shall also provide skilled maintenance personnel, tools and repair parts to identify and correct equipment failures that may occur during user demonstration. The contractor shall obtain replacement parts from the original supplier or authorized dealer by the most practical expedient means so that any malfunctioning TDM equipment is promptly repaired. The user demonstration will last approximately 5 days. It is anticipated that demonstration will be conducted at Ft. Pickett, Virginia.

C.2.5.2 Military Packaging Documentation Requirements

The contractor shall develop packaging requirements for the complete RIFTS TDM. The packaging system requirements are developed as part of the Shipment and Storage Instructions (S&SI).

C.2.5.2.1 Shipment and Storage (S&S) Instructions.

The Contractor shall develop and deliver S&SI in accordance with Data Item A009. The Contractor shall ensure those instructions are consistent with the transportability requirements stated in the system performance specification. The S&S instructions shall detail procedures required to prepare the TDM system for storage after it has been in operation. The contractor shall format the S&S instructions in accordance with Data Item A009, Special Packaging Instructions and deliver them to the email listed in the data item.

C.2.5.2.2 S&S processing instructions

(a) Short Term Storage (180 days maximum in an unheated warehouse) for application when items are in transit.

(b) Long term storage instructions. The Government will use these instructions to prepare a system for open storage (outdoor storage) for a period of up to 2 years. The Contractor shall ensure these instructions include any cyclic maintenance and exercising requirements necessary to prevent the system from deteriorating due to inactivity.

C.2.5.2.3 Compliance with Federal and Industry Transportation Requirements.

The Government may ship the TDM by truck, rail, plane or ship. The Contractor shall develop packaging requirements and shipment and storage instructions for these modes of transportation and identify any unique requirements for each mode of transport. This will allow the Government to process for shipment based on the intended mode of transport. The Contractor shall comply with the applicable codes and standards listed here: (1) Code of Federal Regulation Titles 29, 40 and 49, (2) International Maritime Dangerous Goods Code, for vessel transport, and (3) AFMAN 24-204, Preparing Hazardous Materials for Military Air Shipments. The Contractor shall include disassembly procedures to meet the requirements of the codes and standards mentioned above.

C.2.5.2.4 Packaging Instructions for Basic Issue Items.

The Contractor shall ensure that the shipment and storage instructions include packaging instructions for the Basic Issue Items (BII) (displacement and evacuation kit, conduit repair kit and any other support equipment that the contractor provides) and Components of the End Item (COEI), (the conduit, ERDs, APS and C2M.) The Contractor shall ensure the instructions require that BII shall be packed separately from the COEI.

C.2.5.2.4.1 BII and COEI Packaging.

The Contractor shall identify, in the TDM shipment and storage instructions, provisions for stowage location and security for the BII and COEI. Any HAZMAT COEI shall be packaged and shipped separately from the system IAW paragraph C.2.5.2.3 of the SOW. Packing requirements of any HAZMAT COEI will vary depending on mode of transportation and packaging requirements shall be stated for each mode. The Contractor shall ensure the stowage locations shall deter pilferage and shall not interfere with lifting, tie down or other transportation handling requirements.

C.2.5.2.4.2 Updates and Changes to Shipment and Storage Instructions.

The Contractor shall revise the shipment and storage instructions to reflect any TDM design changes that affect the system's shipment configuration, weight, or transportability. The Contractor shall also provide revisions to the shipment and storage instructions for each logistics change affecting packaging instructions for BII or COEI. The contractor shall deliver the revised shipment and storage instructions pursuant to A009.

C.2.5.2.4.3 Validation of Shipment and Storage Instructions.

The Contractor shall validate both long term and short-term shipment and storage instructions. The purpose of validation is to verify the adequacy of the preservation, packaging, packing and stowage of the TDM and its BII/COEI, preservation procedures for shipment and storage, and the cyclic maintenance requirements for systems in long-term storage. The TACOM Packaging representative will verify and witness validation procedures. The Contractor shall notify the TACOM Packaging representative listed in block 16 of data item A009 14 days prior to scheduled verification.

C.2.5.3 Integrated Logistics Support (ILS) for RIFTS Block I.

C.2.5.3.1 APPLICABLE DOCUMENTS.

DATA ITEMS

DI-ALSS-81529	MAINTENANCE ALLOCATION CHART (MAC)
DI-ALSS-81529	BASIC ISSUE ITEMS LIST (BIIL)
DI-ALSS-81529	COMPONENT OF END ITEMS LIST (COEI)
DI-ALSS-81530	SPECIAL TOOLS & TEST EQUIPMENT (SSTE)
DI-MISC-80711	TECHNICAL MANUAL OPERATOR
DI-MISC-80711	TECHNICAL MANUAL UNIT, FIELD LEVEL
DI-MISC-80711	TECHNICAL MANUAL RPSTL
DI-ILSS-80872 (T)	TRAINING MATERIALS

SPECIFICATIONS/STANDARDS

MIL-PRF-49506
MIL-STD-40051B
MIL-STD-2361B
MIL-STD-882D

OTHER GOVERNMENT DOCUMENTS

TB 750-93-1, Change 5
AR 750-1 (Guidance Only)
MIL-HDBK-1222B (Guidance Only)

The Military Documents in the Contract Data Requirement Lists (CDRLS) and ILS Scope of Work (SOW) are on the web address: http://contracting.tacom.army.mil/acqinfo.htm. The Contractor shall use Military Performance (MIL-PRF) Specification 49506, Logistics Management Information (LMI), as well as DI-ALSS-81529 for use in identifying content, format, delivery and related guidance for logistics data, except where otherwise identified in this contract. The most recent versions of these documents shall be used.

C.2.5.3.2 Objective. The ILS statement of work described herein is to identify and define the logistic support requirements for RIFTS Block I and to acquire the necessary logistic support resources needed during RIFTS Block I PQT, LD and LUT to effectively assess system level performance to include supportability. RIFTS Block I must demonstrate successful operational supportability and that all logistics support considerations have been achieved.

C.2.5.3.3 ILS Management. The Contractor shall plan and manage an ILS program that will successfully conduct the ILS work effort. The Contractor shall provide all technical, planning and managerial tasks to satisfy the requirements as defined in this SOW. The ILS program shall be discussed during program reviews, and monitored and managed during the development process jointly by Contractor and TACOM ILS functional specialists.

C.2.5.3.3.1 ILS Start of Work (SOW) Meeting. The Contractor shall meet with Government representatives within thirty (30) calendar days after award of modification P00004. This meeting shall be held at the U.S. Army Tank-automotive and Armaments Command (TACOM) in Warren, Michigan. However, when jointly agreed upon between the Contractor and the COR, the meeting may be held at an alternate location. At this meeting, the Contractor shall present and discuss detailed plans and tasks that describe the Contractor activities to (i) perform the ILS work effort, (ii) develop quality ILS products, and (iii) meet contract data delivery requirements. The Contractor shall provide to the COR an internal list of all functional Contractor personnel involved in this contract. As changes occur, the contractor shall update this list and provide a copy to the COR.

C.2.5.3.3.2 ILS Technical Guidance Meetings. As part of the overall RIFTS Block I ILS management effort, the Contractor shall provide appropriate technical specialists to attend ILS technical meetings, on an as-needed basis, to receive guidance, clarification or assistance from the Government ILS functional specialists during the course of the ILS effort. These meetings will be held at the Contractor facility, however, when jointly agreed upon between the Contractor and the COTR, the meeting may be held at an alternate location.

C.2.5.3.4 Logistic Support Analysis. The Contractor shall plan and conduct logistic support analysis to provide an objective, analytical basis to support the decision making process and for developing quality ILS products required in this contract under C.2.5.3.4.1 through C.2.5.3.4.2. The Contractor shall identify and analyze the operational, maintenance and support functions of the

system. The Contractor shall use this functional analysis to define system support requirements, to identify operator and maintenance tasks and to determine the scope of required support resources. The contractor shall provide updates during the Quarterly Reviews described in paragraph C.2.1.3.

C.2.5.3.4.1 Maintenance Analysis and Planning. The contractor shall perform a Maintenance Analysis to identify maintenance functions, levels of maintenance, manpower, spare parts and the support equipment required. The analysis shall determine maintenance requirements, including all Preventative Maintenance Checks and Services (PMCS), based on: (1) identification of components that are critical in terms of mission and operating system; (2) components whose functional failure will not be evident to the operator; (3) economical and/or operational consequences of failure; and (4) when scheduled maintenance can prevent failures. The contractor shall document in Contractor format the Maintenance Analysis as a Logistics Management Information summary entitled "Maintenance Analysis" (See Attachment 6). Maintenance tasks shall be designated to the appropriate Level of Maintenance. The analysis shall be in End Item hardware top down breakdown, disassembly sequence with attaching hardware being called off first. It will identify Functional Group Codes in accordance with (IAW) TB 750-93-1, Change 5, date 27 Jun 1983, for each repairable item. The Technical Bulletin (TB) can be found at web site http://www.logsa.army.mil. Contractor should enter the Pubs, ETM selection, and request access. Instructions for Maintenance Analysis are contained in Attachment 6, under Maintenance Planning. The LMI summary shall be delivered to the COR within 120 days after the ILS SOW meeting in accordance with CDRL A013. The COR will provide comment within 15 days after receipt. The contractor shall submit a revised summary within five (5) days after receipt of COR comments. The contractor shall also provide updates during the quarterly review and submit a final draft LMI summary at the completion of the contract as defined in the CDRL.

C.2.5.3.4.1.1 Maintenance Concept and Levels. The RIFTS Block I shall be serviced, maintained and repaired at the lowest maintenance levels possible. Maintenance of the RIFTS Block I shall be driven by the two level maintenance concepts: Field and Sustainment, as outlined below and in accordance with AR 750-1.

a. Field Level Maintenance is comprised of the Unit (Crew, Organizational) and Direct Support functions. Field Maintenance shall consist of Preventative Maintenance Checks and Services (PMCS) and very basic troubleshooting. The Field Maintenance consists of Operators/Crew, Organizational and selected Direct Support maintenance capabilities from the previous four level maintenance system where the maintenance functions of inspection, test, service, adjust, align, remove/install, install, replace, and repair are performed.

b. Sustainment Level Maintenance is comprised of General Support and Depot functions. Sustainment Maintenance consists of repairing components, assemblies, modules, and end items in support of the supply system. Sustainment maintenance is characterized as "off system" and "repair rear." The intent of this level is performing commodity-oriented repair on all supported items to one standard that provides a consistent and measurable level of reliability. The Sustainment Level Maintenance requires a National Maintenance Work Requirement (NMWR).

c. National Maintenance Work Requirement (NMWR) Component Candidates and Analysis. The Government's preliminary NMWR component candidate list consists of repairable assemblies such as: engine, transmission, axles, final drives, fuel injection pumps, starters and alternators.

1. The NMWR Candidate List. The Contractor shall deliver a NMWR candidate list consisting of all parts coded for repair at the Sustainment Level of Maintenance, in accordance with CDRL A024. The source data for this list will be the Maintenance Analysis performed per paragraphs C.2.5.3.4.1 through C.2.5.3.4.1.2. The draft NMWR Candidate List shall be provided to the COR within 210 days after award of modification P00004. The COR will provide comments within 14 days and the Contractor shall incorporate the COR comments within 30 days of receipt and provide a final copy as specified in the CDRL.

C.2.5.3.4.1.2 Level of Repair Analysis. The Contractor shall conduct Level of Repair Analysis (LORA) for the RIFTS Block I. This analysis shall determine the maintenance level at which the item should be repaired or replaced, with an evaluation threshold of $1,000; the Contractor shall also consider other factors such as the availability of replacements and the affect on operational readiness. The Contractor shall include economic and non-economic criteria in this analysis. Non-economic criteria that could impact the level of maintenance decision include manpower and personnel implications, support equipment and facilities availability, and the maintenance concept. Results of this analysis shall be documented in the Maintenance Allocation Chart (MAC) (See paragraph C.2.5.3.5, below) and Technical Manuals (C.2.5.3.6); the Contractor shall also consider other factors such as the availability of replacements and the affect on operational readiness.

C.2.5.3.4.2 Supportability Analysis. The Contractor shall perform a supportability analysis as part of the overall management and engineering process for the RIFTS Block I. This analysis shall identify and describe the support requirements of this system in terms of operator and maintenance task requirements and the associated support resources to conduct these tasks. The supportability analysis shall identify support equipment and other resources for all RIFTS Block I system operations (emplacement, operation, evacuation, recovery) to include integration with the IPDS pump stations and associated support equipment. The information obtained from this analysis shall be incorporated into the Operator Technical Manual, Field Maintenance Technical Manual, the Repair Parts and Special Tools List and the Support Equipment Tools and Test Equipment (paragraphs C.2.5.3.6 through C.2.5.3.6.5)

C.2.5.3.5 Maintenance Allocation Chart (MAC). Using the results from the LORA, the Contractor shall prepare a MAC in accordance with System Performance Specification, Attachment 1, MIL-STD-40051B Change Notice 1 (Preparation of Digital Technical Information for multi-output presentation of Technical Manuals), and submit a draft copy to the COR 120 days after the ILS SOW meeting. The Gov. will review and provide comments during the testing. The contractor shall incorporate all corrections and changes identified during testing and

submit a corrected copy to the COR 21 days prior to the LUT and in accordance with CDRL A014. The MAC is a living document that forms the basis for technical manual development. It is therefore subject to changes. The MAC shall identify the repair functions that must be performed, the active repair time as defined in AMC-P-700-25, tools and test equipment necessary to perform the function for each repairable assembly, subassembly, and component in Functional Group Code sequence. The Contractor shall validate the repair task times, intervals and Tools and Test Equipment (paragraph C.2.5.3.6.5).

An example of the MAC header, with the Army's two levels of maintenance incorporated is shown below.

(1)	(2)	(3)	(4)				(5)	(6)
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINTENANCE FUNCTION	MAINTENANCE LEVEL				TOOLS AND TEST EQUIPMENT	REMARKS CODE
			FIELD		SUSTAINMENT			
			UNIT	DS	GS	DEPOT		
			C	O	F	H	D	

C.2.5.3.6 Technical Publications

C.2.5.3.6.1 The Contractor shall deliver the following technical publications on Operation, Maintenance, Repair Part and Special Tool List Manuals that will cover the RIFTS Block I in accordance with CDRL listed below.

TM 10-4320-XXX-10	Operator's Manual	CDRL A015
TM 10-4320-XXX-23	Unit, Field Maintenance Manual	CDRL A016
TM 10-4320-XXX-23P	Unit, Field Maintenance Parts Manual	CDRL A017

Note: Manuals may be divided into Volumes if the page count for one manual exceeds 1500 pages (750 sheets).

C.2.5.3.6.1.1 Prepare TM's in accordance with MIL-STD-40051B(1) and CDRLs listed above. These manuals shall cover all components of the RIFTS Block I. For guidance only, use MIL-HDBK-1222B, DOD Handbook, Guide to the General Style and Format of US Army Work Package Technical Manuals and MIL-STD-2361B, DOD Interface Standard Digital Publications development at http://www.logsa.army.mil/mil40051/menu.htm

C.2.5.3.6.1.2 Contractor shall furnish unrestricted copyright releases for all manuals and supplemental data. The Contractor shall ensure that the Government has the right to use, copy and distribute the manuals and electronic data files delivered under this contract both electronically and in hard copy. The Contractor shall correct all errors found in the manuals resulting from Contractor and Government reviews, PQT, Log Demo, and LUT.

C.2.5.3.6.1.3 The contractor shall include the following instructions in Technical Manuals: Inspect, Test, Service, Adjust, Align, Remove/Install, Replace, and Repair, which includes Fault Isolation/Troubleshooting, Removal/Installation, Disassembly/Assembly procedures, and Maintenance Actions to identify problems and restore serviceability to an item on all components and parts.

C.2.5.3.6.2 Repair Parts and Special Tools List (RPSTL)

C.2.5.3.6.2.1 The Contractor shall deliver a RPSTL for the RIFTS Block I. The RPSTL shall include front matter, an introduction and illustrations in accordance with CDRL A017, DD1423, for DI-MISC-80711. The Contractor shall prepare tabular lists and cross reference indexes for that RPSTL. NOTE: The contractor shall incorporate commercial drawings and illustrations, coupled with commercial parts list into DA format, in accordance with MIL-STD 40051B, to satisfy DA RPSTL requirements.

C.2.5.3.6.2.2 Approved Equipment Changes. The Contractor shall incorporate into each RPSTL, coverage for all Government notified changes made to the equipment, up to delivery of the final equipment under this contract.

C.2.5.3.6.2.3 Corrections of Errors: AMSTA-LC-CJA is designated as the Government Manual and RPSTL acceptance activity. If the Contractor receives RPSTL comments or corrections from Government activities other than the Government RPSTL acceptance activity, the Contractor shall forward these comments and corrections to the Government RPSTL acceptance activity for approval or rejection.

C.2.5.3.6.3 Basic Issue Items List (BIIL). The Contractor shall deliver to the COR a Basic Issue Items List within 120 days after the ILS SOW meeting, in accordance with CDRL A018. The COR will review the initial draft BIIL and provide comments within 21 days after receipt. Additional submissions will be in accordance with the CDRL. The BIIL is the essential, ancillary items, required to place the equipment into operation and perform emergency repairs, enabling it to perform the mission and function according to design.

C.2.5.3.6.4 Component of End Item List (COEI). The Contractor shall deliver to the COR a Component of End Item List within 120 days after the ILS SOW meeting, in accordance with CDRL A019. The COR will provide comments within 21 days after receipt of the initial draft COEI. Additional submissions will be in accordance with the CDRL. These items are part of the End Item that must be with the End Item, whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation.

C.2.5.3.6.5 Support Equipment Tools and Test Equipment (STTE). Using the results from the maintenance and supportability analyses, the Contractor shall prepare a list of STTE and submit it to the COR within 120 days after the ILS SOW meeting, in accordance with CDRL A020. The COR will provide comments within 21 days after receipt of the initial draft STTE. Additional submissions shall be in accordance with the CDRL. The list shall be in tabular form provide Nomenclature, National Stock Number (NSN), if assigned, Part Number, Manufacturer, level of maintenance, and price of each item on the list. The Contractor shall identify STTE by category (Support Equipment, Common Tools, Special Tools, Common TMDE, Nonstandard TMDE). SPECIAL TOOLS: Special tools are tools not found in any of the Army's Common Tool Sets. Common tool sets are listed on US Army LOGSA web site at http://weblog.logsa.army.mil/sko/index.cfm. NONSTANDARD TMDE: TMDE not contained in DA TMDE Preferred Items List, DA Pam 700-21-1. Further, the Contractor shall provide special source and calibration documentation for those TMDE items not identified in DA PAM 700-21-1.

C.2.5.3.7 System Support Package Component List (SSPCL). Using results from the maintenance and supportability analyses, the Contractor shall prepare a SSPCL, which identifies all system support resources required for both the logistic demonstration and PQT/LUT and submit it to the COR 90 days prior to the PQT, in accordance with CDRL A021 and CDRL A022. The COR will provide comments within 14 days after draft receipt. The contractor shall submit the final SSPCL 7 days after receipt to COR comments. Additional submissions will be in accordance with the CDRL. At a minimum, the SSP will include, repair parts, special tools, BII, expendable items, TMDE and draft equipment publications. The approved SSPCL shall provide the basis for identifying the SSP to be procured and delivered in support of PQT/LUT and the logistic demonstration.

C.2.5.3.8 Logistics Demonstration and Plan for RIFTS Block I.

C.2.5.3.8.1 Logistics Demonstration Plan. The Government and Contractor shall jointly develop a Logistics Demonstration (LD) Plan for the RIFTS Block I. The LD Plan shall contain the government and Contractor plans and procedures for demonstrating the logistics supportability of the system. The LD Plan shall be prepared and delivered to the COR 90 days prior to the Logistics Demonstration as defined in modification P00004, in accordance with CDRL A023. The COR will review and provide comments within 14 days after receipt of the plan. The contractor shall submit the correct plan within 7 days after receipt of COR comments.

C.2.5.3.8.2 Logistics Demonstration (LD). The Contractor shall provide the support described herein for the Government to conduct the Logistics Demonstration. The LD will require up to ten business days (approximately July 2005) to complete. The contractor shall make available up to three sets of RIFTS Block I components for the LD and all items identified on the approved SSPCL pursuant to CDRL A022. The Contractor shall provide the facilities and all necessary support equipment to conduct the LD. These facilities shall include an operations site, a shop area equipped with lifting equipment and all the tools and diagnostic equipment required to perform all operations and maintenance tasks (up to field level).

*** END OF NARRATIVE C 005 ***

C.2.6 Develop High-Pressure Conduit.

C.2.6.a The contractor shall investigate and develop a High-Pressure Conduit. The contractor shall conduct all the necessary research and testing to develop a conduit with working pressure of 750 psi and with a burst pressure of 2250 psi. Except for these pressure requirements, the high-pressure conduit shall meet all other requirements stated in paragraphs 3.3.1.1 and 3.3.1.1.1 of the performance specification.

C.2.6.b The contractor shall develop a separate Test Plan that, when performed, will demonstrate whether the high-pressure conduit can meet all of the requirements stated in paragraphs 3.3.1.1 and 3.3.1.1.1 of the performance specification, with a working pressure of 750 psi and with a burst pressure of 2250 psi. The contractor shall submit this test plan to the COR within 60 days after award of modification P00001. The COR will review this test plan and provide comments within 5 working days after receipt. The contractor shall test the high-pressure conduit IAW this test plan. Additionally, the Contractor Testing of the integrated RIFTS TDM, required by paragraph C.2.3.2 shall apply.

C.2.6.c The contractor shall select up to five (5) vendors from whom to obtain High-Pressure Conduit samples; each of these vendors shall have the ability to provide production quantities of its high-pressure conduit if selected for approval. The contractor shall obtain three 20-foot sections (each section may be approximate but the three sections must total a minimum of 60 feet), and one (1) 1/4-mile section from each. The contractor shall test the samples from these vendors in accordance with the test plan described in C.2.6.b, above. Based on the test results, the contractor shall select for approval up to two (2) vendors that best demonstrate the capability to produce High-Pressure Conduit meeting all the required performance specifications. In the event none of the High-Pressure Conduit samples meet all the performance specifications, the contractor shall notify the COR and provide the advantages and disadvantages of the two most highly rated vendor samples.

C.2.6.d The requirements of paragraph C.2.2.1.7, Critical Design Review, apply to this section C.2.6.

C.2.6.e TACOM will provide one IDPS pumping unit and one 6-inch IDPS gate valve, no later than 29 February 2004, to support the high-pressure conduit development and effort.

*** END OF NARRATIVE C 006 ***

C.3 Options:

C.3.1 Pursuant to Clause H.19, Options for Additional Effort, the Government may exercise any or all of the following option efforts contained in this section C.3. The objective of the options is to give the Government the ability to acquire additional RIFTS components and additional testing to increase the capability and the level of confidence of the RIFTS TDM.

C.3.1.1 The RIFTS TDM Requirement List (Attachment 002 of the basic contract) identifies the RIFTS TDM requirements and objectives. The following paragraphs of the System Performance Specification (Attachment 001 of the basic contract) shall become requirements of the RIFTS TDM Requirement List if and only if the PCO exercises the applicable option:

(i) Paragraph 3.3.1.4.6, Command and Control Module (C2M) Environment Control Shelter;
(ii) Paragraph 3.3.1.4.2, Leak Detection Capability;
(iii) Paragraph 3.3.1.5, RIFTS Automated Trace Locator (RATL);
(iv) Paragraph 3.3.1.1, High-Pressure Conduit development; and
(v) Paragraph 3.3.4 and all of its sub paragraphs, Environmental Testing

C.3.1.3 The contractor shall provide all materials and labor necessary for performance of the option(s) exercised by the PCO. Any components required by exercised options shall be in accordance with the System Performance Specification provided in the basic contract. The contractor shall integrate any exercised option components into the RIFTS TDM required under the basic contract. All tests and demonstration activities required by the basic contract shall apply to any exercised option component(s). The contractor shall include all the requirements stated in the basic contact and any exercised option(s) in the final RIFTS TDM; all components shall be tested and demonstrated as one complete RIFTS TDM system. Any components required by exercised options shall be included in the new System Performance Specification the contractor prepares pursuant to clause C.2.2.7.1 of the basic contract. The contractor shall provide all as built drawings for any exercised options pursuant to clause C.2.2.7.3 of the basic contract. The contractor shall include any exercised options in all reports required by the basic contract.

C.3.1.4 Option System Specification Review(s) (SSR)

If the Government exercises the applicable option, the contractor shall prepare and submit to the COTR component performance specifications for the C2M Environment Control Shelter, the Leak Detection Capability, the Automated Trace Locator (RATL) and High-Pressure Conduit. The contractor and the Government shall hold option SSR meeting(s) (teleconference) no later than 60 days after exercise of each of these options to review each specification before it is released to potential subcontract bidders. The contractor shall submit the component performance specifications to the COTR electronically 1-2 work days prior to the scheduled teleconference. The contractor shall combine the SSR meetings for any options the Government exercises concurrently.

C.3.1.5 Option Preliminary Design Review(s) (PDR)

If the Government exercises the applicable option, the contractor shall conduct a PDR for High-Pressure Conduit no later than 105 days after days after exercise of each option to present candidate alternatives for RIFTS implementation for the exercised option components, or on the specific component implementation designs. The contractor shall include recommendations and tradeoffs for each candidate alternative so that a decision to proceed can be made at the conclusion of the PDR meeting. The contractor shall combine the PDR meetings for any options the Government exercises concurrently.

C.3.1.6 Option Critical Design Review(s) (CDR)

If the Government exercises the applicable option, the contractor shall conduct a CDR for the C2M Environment Control Shelter, the Leak Detection Capability, and the Automated Trace Locator (RATL) at the time of completion of the detailed design effort and creation of drawings for procuring or fabricating the option component(s). The contractor shall conduct the CDR no later than 180 days after exercise of each option. The detailed designs from CDR review(s) shall serves as a basis for fabrication of the option component(s). The contractor shall combine the CDR meetings for any options the PCO exercises concurrently.

C.3.1.7 The design considerations identified in C.2.2.2 of the basic contract shall apply to any exercised option(s).

C.3.1.8 Option Test Plan(s)

Unless otherwise stated, for each option exercised by the Government after submission of the test plan required at paragraph C.2.3.1 of the basic contract, the contractor shall develop an addendum to the RIFTS test plan that provides sufficient testing of the TDM with the additional option components to adequately demonstrate the RIFTS TDM meets all required TDM specifications, including those of the

exercised options. The contractor shall submit the addendum to the test plan to the COR no later than 180 days after exercise each option. The Government has 30 days to review the addendum to the test plan and provide comments. The contractor shall deliver any revisions to the test plan addendums within five (5) days after receipt of Government comments. The contractor shall include any exercised option components in the test plan required by C.2.3.1, if the plan has not yet been submitted to the COR at the time of option exercise.

*** END OF NARRATIVE C 007 ***

C.3.2 Option Tasks:

C.3.2.1 Option 1: RESERVED

*** END OF NARRATIVE C 008 ***

C.3.2.2 Option 2: Provide Leak Detection Capability.

C.3.2.2.a. If Option 2 is exercised by the PCO, the contractor shall provide Leak Detection Capability for the RIFTS TDM IAW paragraph 3.3.1.4.2 of the performance specification.

C.3.2.2.b. In the event that the PCO exercises this Option 2, the Test Plan required by paragraph C.2.3.1 and the Contractor Testing required by paragraph C.2.3.2 shall apply in addition to the requirements contained in section C.3.1.1 through C.3.1.8.

*** END OF NARRATIVE C 009 ***

C.3.2.3 Option 3: Develop the RIFTS Automated Trace Locator (RATL).

C.3.2.3.a. If Option 3 is exercised by the Government, the contractor shall develop the RIFTS Automated Trace Locator (RATL) for the RIFTS TDM IAW paragraph 3.3.1.5 of the performance specification. Note however, that the contractor is not required to provide the laptop computer referenced in the last sentence of paragraph 3.3.1.5 of the performance specification.

C.3.2.3.b. In the event that the PCO exercises this Option 3, the Test Plan required by paragraph C.2.3.1 and the Contractor Testing required by paragraph C.2.3.2 shall apply in addition to the requirements contained in section C.3.1.1 through C.3.1.8.

*** END OF NARRATIVE C 010 ***

C.3.2.4 Option 4: Provide Employment and Retrieval Devices (ERDs).

C.3.2.4.a. If Option 4 is exercised by the PCO, the contractor shall provide the specified quantities of additional Employment and Retrieval Devices (ERDs) in accordance with paragraph 3.3.1.2 of the performance specification. Each ERD shall store a minimum of one mile of conduit. The Government may acquire up to 45 additional ERDs under this option. The Government reserves the right to exercise this option in full or in part; the minimum quantity the Government may exercise under this option at any particular action is one ERD.

C.3.2.4.b. In the event that the Government exercises this Option 4, the Test Plan required by paragraph C.2.3.1 and the Contractor Testing required by paragraph C.2.3.2 shall apply in addition to the requirements contained in section C.3.1.1 through C.3.1.8.

*** END OF NARRATIVE C 011 ***

C.3.2.5 Option 5: Provide additional Automated Pumping Stations (APSs).

C.3.2.5.a. If Option 5 is exercised by the PCO, the contractor shall provide additional Automated Pumping Stations (APS) in accordance with paragraph (3.3.1.3) of the performance specification. The Government may acquire up to an additional five (5) APSs under this option. The Government reserves the right to exercise this option in full or in part; the minimum quantity the Government may exercise under this option at any particular action is one (1).

C.3.2.5.b. In the event that the Government exercises this Option 5, the Test Plan required by paragraph C.2.3.1 and the Contractor Testing required by paragraph C.2.3.2 shall apply in addition to the requirements contained in section C.3.1.1 through C.3.1.8.

*** END OF NARRATIVE C 012 ***

C.3.2.6: Option 6: RESERVED

*** END OF NARRATIVE C 013 ***

C.3.2.7 Option 7: RESERVED.

*** END OF NARRATIVE C 014 ***

C.3.2.8 Option 8: RESERVED

*** END OF NARRATIVE C 015 ***

C.3.2.9 Option 9: Provide Additional High-Pressure Conduit

C.3.2.9.a. If Option 9 is exercised by the PCO, the contractor shall provide the specified quantities of High-Pressure Conduit it developed under C.2.6 of this contract. The Government may acquire up to forty-five (45) miles of high-pressure conduit under this option. The Government reserves the right to exercise this option in full or in part; the minimum quantity the Government may exercise under this option at any particular action is five miles of conduit.

C.3.2.9.b. In the event that the Government exercises this Option 9, the contractor shall test the high-pressure conduit IAW the test plan it used to develop the high-pressure conduit (paragraph C.2.6.b of this contract). The Contractor Testing required by paragraph C.2.3.2 shall apply in addition to the requirements contained in section C.3.1.1 through C.3.1.8.

*** END OF NARRATIVE C 016 ***

SECTION G - CONTRACT ADMINISTRATION DATA

LINE ITEM	PRON/ AMS CD/ MIPR	ACRN	OBLG STAT/ JOB ORD NO	PRIOR AMOUNT	INCREASE/DECREASE AMOUNT	CUMULATIVE AMOUNT
000107	P146RC212T	AC	2	$ 0.00	$ 1,000,000.00	$ 1,000,000.00
	654804L4100		4ZCP22			
				NET CHANGE	$ 1,000,000.00	

SERVICE NAME	NET CHANGE BY ACRN	ACCOUNTING CLASSIFICATION	ACCOUNTING STATION	INCREASE/DECREASE AMOUNT
Army	AC	21 42040000041C1C09P654804255Y S20113	W56HZV	$ 1,000,000.00
			NET CHANGE	$ 1,000,000.00

	PRIOR AMOUNT OF AWARD	INCREASE/DECREASE AMOUNT	CUMULATIVE OBLIG AMT
NET CHANGE FOR AWARD:	$ 9,640,919.00	$ 1,000,000.00	$ 10,640,919.00

Name of Offeror or Contractor: SOUTHWEST RESEARCH INSTITUTE

SECTION J - LIST OF ATTACHMENTS

List of Addenda	Title	Date	Number of Pages	Transmitted By
Attachment 001	SYSTEM PERFORMANCE SPECIFICAITON (R1)	24-AUG-2004	015	
Attachment 004	CONTRACT DATA REQUIREMENTS LIST		012	
Attachment 005	ATTACHMENT 5 - PUBLICATIONS REQUIREMENTS		002	
Attachment 006	ATTACHMENT 6 - MAINTENCE ANALYSIS		001	
Attachment 007	ATTACHMENT 7 - RPSTL INSTRUCTIONS		002	

Attachment 001
14 March 2003
Updated 24 August 2004

SYSTEM PERFORMANCE SPECIFICATION (R1)
Rapidly INstalled FLUID Transfer System (RIFTS)

This specification is approved for use by the U.S. Army Tank-automotive and Armaments Command and the Department of the Army and it is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1. Scope. This system performance specification establishes the characteristics and performance requirements for the Rapidly Installed Fluid Transfer System (RIFTS). The RIFTS is a rapidly emplaced and retrieved fluid transfer system that has the capability of distributing 850,000 gallons of fuel or water per day. One RIFTS system consists of 50 miles of conduit with deployment and retrieval devices, adequate number of pumping stations for the mission terrain, one command and control module with leak detection capability, and one computer based planning aid. The RIFTS is an ISO-compatible system that has the ability to be loaded and transported using the HEMTT-LHS truck, PLS truck, and PLS trailer as the prime mover. The system is designed to traverse to different types of terrain that the employment vehicle is capable of. With the emplacement rate requirement of 20 miles per day (mpd) and retrieval rate requirement of 10 mpd, the RIFTS has the flexibility to be tailored for any location, terrain or transport distance on the battlefield. RIFTS allows distribution planners to move the system as the battlefield moves.

2. APPLICABLE DOCUMENTS

2.1. General. The documents listed in this section are specified in sections 3 of this specification. This section does not include documents cited in other sections of the specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 of this specification, whether or not they are listed.

2.2. Government documents.

2.2.1. Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2)

SPECIFICATIONS

FEDERAL

A-A-52624- Antifreeze, Multi-Engine Type
A-A-52557- Fuel Oil, Diesel; For Posts, Camps And Stations

DEPARTMENT OF DEFENSE

MIL-PRF-2104-Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service.
MIL-PRF-2105-Lubricating Oil, Gear, Multipurpose (Metric).
MIL-DTL-5624-Turbine Fuel, Aviation, Grades JP-4, JP-5, And JP-5/JP-8 ST.
MIL-PRF-10924-Grease, Automotive and Artillery.
MIL-PRF-21260-Lubricating Oil, Internal Combustion Engine, Preservative Break-In.
MIL-F-46162-Fuel, Diesel, Referee Grade.
MIL-PRF-46167-Lubricating Oil, Internal Combustion Engine, Arctic.
MIL-C-53039-Coating, Aliphatic Polyurethane, Single Component, Chemical Agent Resistant.
MIL-DTL-83133-Turbine Fuels, Aviation, Kerosene Types, NATO F-34 (JP-8), NATO F-35, and JP-8+100.

STANDARDS

FEDERAL

FED-STD-595-Colors Used in Government Procurement.

DEPARTMENT OF DEFENSE

MIL-STD-1366-Transportability Criteria.
MIL-STD-209-Lifting and Tiedown Provisions.
MIL-STD-461-Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment.
MIL-STD-464-Electromagnetic Environmental Effects Requirements for Systems.
MIL-STD-810-Environmental Engineering Considerations and Laboratory Tests.

HANDBOOKS

MIL-HDBK-1791-Designing for Internal Aerial Delivery in Fixed Wing Aircraft.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from Document Automation and Production Service, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2.2. Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

NORTH ATLANTIC TREATY ORGANIZATION (NATO)

STANAG 1135-Interchangeability of Fuels, Lubricants and Associated Products Used by the Armed Forces of the North Atlantic Treaty Nations.
STANAG 2413- Demountable Load Carrying Platforms (DLCP)

(Copies of North Atlantic Treaty Organization (NATO) are available from NATO Blvd Leopold III, 1110 Brussels, Belgium.)

PURCHASE DESCRIPTIONS

ATPD 2206-Batteries, Storage: Lead-Acid, Maintenance Free.

(Copies are available from the US Army Tank-automotive and Armaments Command, AMSTA-TR-D/210, Warren, MI 48397-5000.)

US ARMY PAMPHLETS

AR 70-38 - Research, Development, Test and Evaluation of Materiel for Extreme Climatic Conditions.
AR 70-75 - Survivability of Army Personnel and Materiel
AR 750-1 - Army Material Maintenance Policy and Retail Maintenance Operations.
DA Pam 611-21-Military Occupational Classification and Structure.
DA Pam 738-750-Functional Users Manual for the Army Maintenance Management System (TAMMS).
DA Pam 750-35-Guide for Motor Pool Operations.

(Copies are available from the US Army Tank-automotive and Armaments Command, AMSTA-TR-D/210, Warren, MI 48397-5000. Some are also available on-line at http://www.usapa.army.mil.)

2.3. Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D610 - Standard Test Method for Evaluating Degree of Rusting on Painted Steel Surfaces SSPC-VIS-2
ASTM D975 - Standard Specification for Diesel Fuel Oils (DoD Adopted).
ASTM D1171 - Standard Test Method for Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens)
ASTM D1655 - Standard Specification for Aviation Turbine Fuels (DoD Adopted).

(Copies are available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

GERMAN INDUSTRIAL STANDARDS

DIN 30722 Pay-off Dump Trucks up to 32T (flatrack critical dimensions)

(Copies are available from Global Engineering Documents, An IHS GROUP Company, 15 Inverness Way East, Englewood, Colorado 80112.)

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO 668 Series 1 Freight Containers - Classification, Dimensions and Ratings (DoD Adopted)
ISO 1496-1 Series 1 Freight Containers - Specification and Testing - Part 1: General Cargo Containers for General Purposes Amendment 1: 1AAA and 1BBB Containers (DoD Adopted)
ISO 1496-5 Series 1 Freight Containers - Specification and Testing - Pt 5: Platform and Platform-Based Containers

(Application for copies should be addresses to American National Standards Institute, 11 West 42nd Street, New York, NY 10036.)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA-12 - Standard on Carbon Dioxide Extinguishing Systems

(Copies are available from the National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101)

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

SAE ARP 1967 - Containers, Shipping and Storage, Reusable (DoD Adopted).

(Copies are available from The Society of Automotive Engineers, Department 105, 400 Commonwealth Drive, Warrendale, PA 15096.)

2.4. Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1. System Description. As written herein, minimum acceptable performance threshold requirements are indicated with the word shall throughout the text. As applicable, objective capabilities that are not mandatory are indicated with the words should, may, desired, or desirable. The RIFTS is used for the transport of large quantities of fuel or potable water in the theater and corps area. One complete RIFTS System consists of 50 miles of conduit and all of the components, such as pumping stations, pressure reducing stations, clean out devices and any other unique components necessary to deploy, operate, and recover the system. To support any size force over both short and long distances, all components of RIFTS, except for the pumping stations, shall be packaged and containerized as 5-mile sets for deployment and installation purposes. For this baseline system contract, contractor shall provide all the components necessary to support a minimum of one 5-mile set.

3.1.1. Mission. The mission of the RIFTS system is to be a rapidly installed, rapidly recovered, fluid transfer system that is capable of deployment across all types of terrain in support of petroleum or water distribution from the port of entry and forward into the theater. It shall be managed with the necessary security, economy of force operations, and within capabilities.
3.1.2. Phases of Operation. There are three major phases of operation for the RIFTS System: employment (see 4.1), fluid transfer, and system retrieval.

3.2. Materials and workmanship. The materials, processing and parts used in the manufacture of the system components shall be as identified and shall meet all of the operational and environmental requirements specified in this performance specification. Particular attention shall be given to the selection of materials, processes, and parts to facilitate interchangeability, reliability, stocking, and replacement in service. The components incorporated into the system shall be newly fabricated from recovered materials to the maximum extent practicable, provided the components meet all other requirements of this specification. The materials shall be of sufficient durability to meet all the requirements as specified herein. No material shall have an adverse effect on the health of personnel when used for its intended purposes. Toxic chemicals, hazardous substances, or ozone depleting chemicals (ODC) shall not be used. When utilized, gaskets shall not be of a cork or cork/rubber combination material.

3.2.1. Workmanship. Product workmanship and finishes shall be in accordance with the best practices used for manufacturing military equipment. Finished items and parts shall not exhibit faulty material and processing such as: discoloration, bubbles, seams, laps, lamination, cracks, visible steps, sharp edges, nicks, scratches, burrs, foreign matter entrapment, deformations, and missing features that could affect usability, serviceability, reliability, operation, safety, or performance requirements.

3.2.2. Interchangeability. All parts that have the same manufacturers or drawing part number shall be fully functional and dimensionally interchangeable and replaceable with each other with respect to installation and performance requirements.

3.2.3. Metals. All metal parts, other than electrical current-carrying parts shall be corrosion-resistant metal, or shall be plated or coated to resist corrosion. Dissimilar metals shall not be used in intimate contact except to complete an electrical circuit or protect against galvanic corrosion.

3.2.4. Non-metals. Non-metals such as plastics, fabric, coatings and protec-tive finishes shall be moisture and flame resistant and self-extinguishing if practical. Such materials shall not be adversely affected by environmental conditions (as specified in 3.3.4) encountered during storage, handling, transporta-tion and operation.

3.2.5. Deterioration prevention and control. Materials shall be selected to meet all the operational and environmental requirements that are specified herein. The system components shall be fabricated from compatible materials that are inherently corrosion resistant or treated to provide against corrosion and deterioration during storage and operational conditions experienced. Conduit shall not be crimped or folded by any system components to prolong conduit life.

3.2.6. Protective finishes and coatings. Materials that are subject to deteriora-tion when exposed to the environmental conditions specified herein shall be protected against any such deterioration. The method of protection shall in no way prevent compliance with other requirements of this document nor interfere with electrical continuity and grounding provisions. The use of any protective coatings that will crack, chip, scale, or erode with age, when exposed to environmental conditions as specified in 3.3.4 shall be avoided.

3.2.7. Corrosion Control Performance. The RIFTS shall operate for the minimum service life (see 3.3.3.7), which will include varying or extended periods in corrosive environments involving one or more of the following: high humidity, salt spray, road de-icing agents, gravel impingement, atmospheric contamination and temperature extremes (-40 to +140 F degrees). Only normal washing, scheduled maintenance (exclusive of paint touch up) and repair of accidentally damaged areas (not a result of intended use, deficiency in design, materials, manufacturing or normal wear), shall be necessary to keep the corrosion prevention in effect. During the specified service life, surface corrosion shall be a maximum of 0.1% (ASTM D610, Rust Grade 8) on inside or outside surface of any component. In no case shall any area exhibit Stage 2 or greater corrosion (as defined in the US Army Corrosion Rating System) during the specified service life. There shall be no affect on form, fit or function of any component due to corrosion

3.2.8. Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs. Used, rebuilt, or remanufactured components shall not be incorporated into the RIFTS.

3.3. Operating and design requirements.

3.3.1. Major Components. All major mechanical components and electrical systems shall be modular in design for fast installation and ease of operation. Design considerations shall be made to minimize the component weight and the amount of logistic footprint that requires to store and transport the system. It is desired that electronical serviceable components be hot swappable.

3.3.1.1. Conduit. For this acquisition the RIFTS shall include a minimum of 5 miles of collapsible conduit, with a desired of 10 miles. Each cont inuous segment of the conduit shall be the same length. The diameter of the conduit shall be sized to provide the system fluid throughput. The proposed conduit for the RIFTS shall be of petroleum-resistant compound and water compatible compound, see 3.3.4 for fuel compatibility. The conduit shall be ultraviolet stable, ozone resistant, and abrasion resistance.

3.3.1.1.1. Pressure. The proposed conduit shall have a minimum burst to working pressure ratio of 3 to 1. The minimum working pressure shall be no less than 350 pounds per square inch (psi). When subjected to working pressure, the length of conduit shall not change more than 2%. The proposed conduit shall not rupture when subjected to a hydrostatic test at the burst pressure. There shall be no slippage or pullout of the coupling from the conduit at the burst pressure.

3.3.1.1.2. Coupling. The couplings, when used to connect conduit segments, shall provide working and burst pressures equal to or greater than the conduit.

3.3.1.2. Emplacement and Retrieval Device (ERD). The ERD(s) shall be a transportable, powered, motor-driven device capable of transporting, storing, employing, and retrieving the conduit when properly positioned and attached to an employment vehicle (see 3.3.3.5). The ERD shall be capable of laying the conduit a minimum of 8 feet from the edge of a road without the employment vehicle

having to leave the road surface. This shall be accomplished without operators having to manually move the conduit. The ERD shall be capable of employing and retrieving the conduit over any terrain that the employment vehicle is capable of traversing. The ERD(s) shall not introduce forces or stresses on the conduit, couplings, or other components of the RIFTS that exceed the performance capability of that component.

3.3.1.2.1. Employment and retrieval. The ERD shall have the capability to employ and retrieve the conduit, control unit speed, brake, and lock (mechanically prevent forward or reverse movement). When properly positioned and attached on the specified employment vehicles, the ERD shall have the capability to employ the conduit at a speed that can meet the system employment rate (see 3.3.3.1). The ERD shall also be capable of retrieving the conduit at a speed that can meet the system retrieval rate (see 3.3.3.1). The required personnel allowed are as specified in 3.3.3.4. In addition, the ERD shall have the capability to manually employ the conduit. During manual employment, the ERD shall have the capability to disengage the power source; employ and stop the conduit; control unit (employment) speed, brake, stop, and lock the ERD when the power source fails. The ERD shall not be required to or used to retrieve the conduit manually when the power source fails.

3.3.1.2.2. Power Source. The ERD shall include its own power source as part of the ERD module. If applicable, the power source shall be compatible with the fuels specified in paragraph 3.4.2. JP8 shall be the primary operating fuel. The ERD shall be capable of meeting all of the applicable performance criteria specified in this specification while operating on JP8.

3.3.1.2.3. Conduit Storage. The ERD(s) shall store the conduit without twisting, kinking, crimping or damaging the conduit or couplings. A means shall be provided to secure both the first and the last conduit section coupling during storage and transport. A minimum of one mile of conduit shall be stored on each ERD, with the ERD(s) sized to accommodate the maximum amount of conduit possible within the safe operating and transportation limits required herein. Same amount of conduit shall be able to store back to the ERD for retrieval. Sufficient space shall also be allotted to allow longer conduit length (no more than 250 feet) or extra volume due to conduit repairs (no more than 2 repairs). Each ERD shall store the same amount of conduit.

3.3.1.2.4. Control Panel. A control panel shall provide the operator with the capability to perform all operations necessary to emplace and recover the conduit. This shall include as a minimum the ability to control all directional, speed, braking, and other operations of the ERD. The control panel shall contain a dead man switch to stop the ERD from operation in case of emergency. The control panel shall be weather proofed and shall allow the operator to operate the ERD during both daylight and darkness (see 3.5.6.2). If a handheld control panel is used, it shall be wireless to reduce safety hazard during operation. In the case of a wireless control panel failure, an alternative method shall be provided for the continual operation of the ERD.

3.3.1.2.5. Communication. Wireless two-way communication (i.e. wireless headphone and microphones) shall be provided between the driver and all operators to maintain clear and constant communication during employment and retrieval processes.

3.3.1.2.6. Configuration. The configuration of each ERD shall be as specified in 3.3.3.6. The configuration of the ERD assemblies shall be such that the use of any external material handling equipment (MHE) for loading and unloading onto and off of the emplacement vehicle during the entire conduit emplacement and retrieval processes is not required.

3.3.1.3. Automated Pumping Stations (APS). For this acquisition, RIFTS shall include adequate pumping stations to transfer fluid across the length of conduit being provided. The system shall be designed for the worst case scenario of the terrain profile (Figure 1). No more than four APSs shall be required to transfer fuel through the required 5 miles of conduit; no more than seven APSs shall be allowed for the desired 10 miles of conduit. Each APS shall include all the equipment that is necessary to transfer and evacuate fuel through the conduit. Provisions shall be made to protect the pumping station from damage due to dirt or debris in the distribution system.

3.3.1.3.1. Pump Assembly. Each APS shall consist of two identical pump assemblies. The pump assemblies shall be configured as primary and secondary. Redundancy in the pumping station shall allow operation of one pump assembly while the other is experiencing failure or undergoing scheduled and unscheduled maintenance. Only one pump assembly shall pump fluid at any given time. Each pump assembly shall be sized to provide the system fluid transfer capability as required in 3.3.3.2 and have a compatible working pressure as the conduit. The pump speed shall be variable and controllable by the APS control system (see 3.3.1.3.5) in order to compensate for minor variations in inlet and outlet conditions. The pump assembly shall be capable of pumping non-potable water or the specified fuels (see 3.4.2). For design purpose, pump assembly shall be optimized for pumping the specified fuels with no degradation in performance. The materials and components of the pump assembly shall be compatible with non-potable water and the specified fuels. The first APS in the system shall be primed by the fluid storage source.

3.3.1.3.2. Pump Assembly Switching. Pump assembly switching shall be accomplished during scheduled and unscheduled maintenance or pump assembly failure. Pump assembly switching shall be accomplished via a remote command from the Command and Control Module (C2M) (see 3.3.1.4) or via the APS local user interface (see 3.3.1.3.6).

3.3.1.3.3. Starting System. The APS shall include a battery operated starting system to start the primary APS power source. The APS shall include a charging system to maintain the battery charged while the APS is in operation. The starting system shall be 24V and the batteries shall be as specified in 3.3.2.6.

3.3.1.3.4.Measurements and Instrumentation. Each APS shall be equipped with instrumentation that will measure and report pump-operating conditions to the local user interface and the C2M. Data shall be used for status display and for leak detection analysis. Minimum parameters shall be measured include:

Inlet and outlet pressure (accuracy 0.3%, repeatability 0.3%)
Flow rate (mass flow, accuracy 0.25%, repeatability 0.25%)
Engine and pump speed (rpm) (accuracy 5% full-scale)
Temperature of pumping fluid (accuracy 4 oF)
Typical engine status measurements coolant temperature (accuracy 4 oF) , oil pressure (accuracy 5% full scale), battery voltage (accuracy 5% full scale)
Fuel tank level (accuracy 2% full-scale) (desired)
Valve positions (valve state) (desired)
Pressure drop across filter-strainer unit (accuracy 5% full-scale)
Pig status (in launcher, in receiver)

All measurements shall be viewable by the APS operator on the local user interface and the C2M. All measurements shall be sent via the APS communication system to the C2M at a minimum sample rate of 1 sample/second where a sample consists of all instrumentation measurements.

3.3.1.3.5. Automated Control System. An automated control system shall be incorporated for each APS to allow continuous unattended operation. The control system shall provide real-time operational control of the APS, including regulation and control of the pump assemblies, signal conditioning and A/D conversion of the instrumentation, send and receive commands from the C2M and the local user interface, and safety and system protection. A separate power source shall be provided for the control system. If batteries are used, a method of recharging shall also be included. To minimize the number of APS components, the APS power source may be used for recharging but shall be isolated from the starter batteries. The control system shall be able to operate, without the APS power source in operation, for a period of at least 24 hours. The control system shall be able to operate continuously while the APS power source is operating. The control system shall be capable of sitting in storage without power for periods of up to one year without requiring a reload of the control system software before operation. The control system shall only require the user to switch on APS power in order to begin full operation.

3.3.1.3.5.1. Control System Hardware, Software, and Functions. The control system shall be an embedded type system with the programmable software residing in solid-state non-volatile memory. Industrial standard programming language shall be used. Adaptation of existing industrial Commercial-Off-the-Shelf (COTS) control system hardware and software is preferred as long as the hardware and software meet the requirements of this specification. The selection of the hardware shall be such that replacement parts are readily available. The control system hardware shall be easily accessible and replaceable at the circuit card/module level or higher, using standard hand tools. At a minimum, remote control operations in response to commands from the C2M or the local user interface shall include:

Pump assembly power source start up/shut down
Pump assembly engage/disengage (if applicable)
Pump speed control
Pump selection (Primary or backup pump assembly)
Fill fuel tank (from the fuel distribution line if fuel is compatible)

The control system shall also sense and respond to fault conditions such as (but not limited to) low pump inlet pressure (see 3.3.1.3.5.2), high pump outlet pressure (see 3.3.1.3.5.2), APS fire (see 3.3.1.3.12), low fuel tank, and any other status indicators for the pump assembly power source. When a fault condition occurs, the control system shall report the fault to the C2M and the local user interface to allow personnel to quickly identify the nature of the fault. In the event that the control system power source is within one hour of running out of power, a warning message will be sent to the local user interface and to the C2M indicating the low power source condition. In the event that control system power is within 30 minutes of failure, the control system shall start the APS power source in order to recharge the control system power source. In the event that the control system is inoperable due to a drained power source, the APS power source shall be capable of being manually started, via the APS starter batteries, by personnel at the APS. In the event of complete control system failure and/or communication failure, provision for complete manual operation of the APS shall be made available. Manual operation shall allow personnel located at the APS to control and monitor all aspects of the APS.

3.3.1.3.5.2. Inlet and Outlet Pressure Fault Conditions. The control system shall not allow the inlet pressure of any APS to fall below the minimum inlet pressure required by the pumping assemblies to minimize the occurrence of cavitation. The control system shall not allow the outlet pressure of any APS to exceed the working pressure rating of the lowest rated component in the RIFTS. In the event that the control system cannot compensate for inlet pressure loss or outlet pressure rise within the operating range of the APS (pump shaft speed), the control system shall bring the pump assembly offline. The control system shall restart the pumping operation when the inlet or outlet pressure has returned to the acceptable level. Care shall be taken with the control system to avoid repeated cycling due to marginal inlet pressure and outlet pressure fluctuations.

3.3.1.3.6. Local User Interface. A graphical user interface shall be built into each APS.
The local user interface shall allow personnel located at the APS to operate the pumping station when communication with the C2M is interrupted or not available. The local user interface shall be able to take over control of pumping station operation from the C2M when personnel located at the APS request control. However, the C2M shall be able to regain control of the APS upon request. The local user interface shall include an emergency shut down button that will stop all of the local APS operation, including the APS power source, when actuated. The shut down button shall be clearly marked and readily visible.

The local user interface shall display all status and instrumentation produced by the APS instrumentation (see 3.3.1.3.4) in real-time. Derived parameters and/or status indicators are allowable as long as all vital information is readily available to local personnel at the APS. For example, a red light can be used to indicate a prime mover problem, but personnel should still be able to determine if it is due to overheating by reading an engine temperature gauge. All pumping station control commands from the C2M shall also be provided by the local user interface for the local APS. The local user interface shall be readable and operable in full daylight and in complete darkness. The interface shall be password protected and weatherproof for use in the environments as specified in 3.3.4. The user interface shall be intuitive and easy to understand with minimal training.
A touch screen video display can be used for the local user interface. The video display shall meet all temperature and environmental requirements for the APS, be readable in direct sunlight and complete darkness, and be operable by personnel wearing full weather gear (see 3.3.4). Analog gauges and switches are also permissible for the local user interface.

3.3.1.3.7. Communication. The APS shall include a communication system that shall serve as the data connection path between the APS and the C2M. The control system shall use the communication system to send data to and receive data from the C2M. The communication system, like the control system, shall use a power source that does not require the APS power source to be in operation. The communication system shall be able to fully operate without the APS power source in operation for a period of 24 hours. The communication system shall be able to operate continuously while the APS power source is operating. In the event that the communication system power source is within one hour of running out of power, a warning message shall be sent to the local user interface and to the C2M indicating the condition. In the event that communication system power source is within 30 minutes of failure, the control system shall start the APS power source in order to recharge communication system battery power. All equipment (i.e. antennas) shall be integrated into the APS framework. The APS control system shall have provisions for Ethernet and RS-232 or RS-422 data connections for use with the communication system. The communications system shall be 0.75 cubic foot of space or smaller. Design consideration shall be given for placement of this communication system within the control system cabinet and for placement of the satellite antenna on the exterior of the APS.

3.3.1.3.8. Strainer Assembly. Each APS shall be equipped with two reusable strainer assemblies capable of removing debris from the fuel flow larger than 0.025 inches in diameter. The strainer assemblies shall be configured such that one strainer assembly can be cleaned out safely while the other is still in service (during pump operation). The strainer assemblies shall be easily accessible to maintenance personnel for inspection and cleaning.

3.3.1.3.9. Secondary Containment. The APS shall be equipped with a secondary containment sump designed to capture fluids or fuel. The sump shall have at least sufficient volume to contain complete spillage of all fluids contained within the APS during operation. This includes all fuel-wetted volumes within the pump assemblies and associated plumbing. The sump shall be equipped with a drain plug allowing personnel to drain the sump into a container for disposal.

3.3.1.3.10. Other APS Components. Provisions such as a scraper launcher and receiver shall be included at each APS for conduit cleaning and fuel displacement operations. Location of such provisions shall be such that execution of these operations can be accomplished without interrupting the flow of the pumping station.

3.3.1.3.11. Slope Operation. The RIFTS System shall meet the performance requirements specified herein with the APS operating on slopes of up to 20 degree from level in any direction.

3.3.1.3.12. Fire Suppression. The APS shall incorporate an active fire suppression system designed to detect and extinguish an APS fire in accordance with NFPA-12. The fire detection system shall be designed to minimize the possibility of false alarm. UV/IR type sensors should be considered in order to minimize false alarms.
In the event of a fire, the fire suppression system shall detect the fire and flood the APS with sufficient CO_2 gas to completely extinguish a fire. The fire suppression system shall alert the control system that a fire is present. The APS control system shall respond by shutting down the APS, sounding audible and visible alarms located at the APS, and alerting the C2M that a fire is present. The fire suppression system shall use an independent power source. If batteries are used, a method of recharging shall also be included. To minimize the number of APS components, the APS power source may be used for recharging but shall be isolated from the starting system. Manual activation of the fire suppression system shall be available, readily accessible, and clearly marked. Manual activation shall be possible even in the event of a complete loss of all APS power.

3.3.1.3.13. Configurations. The configuration of each pumping station shall be as specified in 3.3.3.6. A maximum of two modules shall be allowed for each pumping station with a desired of one module per pumping station. It is desired that all components, such as APS power source, strainers, receivers, launchers (if used), and etc be mounted on the same module with the pump assemblies. Provision

shall be made to securely store all the support equipment and fire suppression equipment on the modules(s). The APS configuration shall minimize the amount of time it takes to set up the pumping stations in order to meet the system employment and retrieval rates specified in 3.3.3.1 and it subparagraphs.

3.3.1.4. Command and Control Module (C2M). The Command and Control Module is the central command for the distribution operation of the RIFTS. The C2M shall be comprised of two main functions, system control and leak detection. The C2M shall display real-time status information from pumping station to pumping station, provides real-time control of pumping stations, and perform leak detection of the deployed distributed system. The C2M shall require only one operator for operation.

3.3.1.4.1. System Control. System control shall provide real-time status and control of the APSs. It is desirable to use the same programming language for the system control as well as for the pumping station automation to allow easy support. The system control shall allow user input to tailor to different deployed system configuration. The system control shall graphically display a complete configuration of the deployed system. This shall allow the operator to point and click to the desire location for the specific information. The system control shall provide a quick summary status of each pumping station. For the minimum, specific real-time information of each pumping station shall include pump inlet and outlet pressure, fluid mass flow rate, fluid temperature, generator battery voltage, engine oil pressure and temperature, pump status, valve status, differential flow rate, leak alarm, leak size, and leak location. In addition, the system control shall allow the operator to have real-time control of the pump assembly start up and shut down, primary or secondary pump selection, pumping direction, pump operating speed (idle-100%). A user-friendly graphical interface shall be provided to perform these operations and to display information.

3.3.1.4.2. Leak Detection. Leak detection shall provide RIFTS with the capability to automatically detect and locate small leaks (loss of 10 gallons per minute (gpm) anywhere along the RIFTS), or a leak rate of 1.25% of the total flow. Sensors incorporated into the APSs shall be used to provide the necessary data for leak detection (see 3.3.1.3.4). Leak detection shall not introduce additional installation and retrieval requirements to RIFTS. Capabilities shall include detecting leaks that exist before the RIFTS system is put into operation (i.e. loose coupling or an existing puncture in the conduit), as well as when the system is in operation. The leak detection software shall be easily adaptable to varying RIFTS configuration (i.e. different distance between pumping stations over deployment on varying terrain). In the event that a leak occurs, an alarm shall sound off to notify the C2M operator and the C2M shall display the location and size of the leak.

3.3.1.4.3. Data Storage. A separate database shall be provided to collect all the sensor data from the APSs as well as the data generated for the leak detection. Values, date, and time information shall also be stored with each data record. Microsoft SQL 2000 or equivalent shall be used. Stored data may be used for real-time analysis and observation, post-operational analysis, training based on real-world information, and transaction recording.

3.3.1.4.4. Hardware. One computer system shall be dedicated for all the system control operations while a separate computer system shall be dedicated for the leak detection operations. The computer systems are required to ensure enough computer resource is available for both software applications to run. The two computer systems shall be capable of communicating with one another as well as with all the pumping stations. They shall be capable of sending and receiving data from each other and sending/receiving data and commands to the APSs. Two flat-panel touch-screen video displays, minimum of 20 in size, shall be included to provide large, high-quality interface for the operator. One display shall be used to display the system layout of the deployed system while the other display shall be used to display the details of the individual APS. The touch-screen interfaces shall allow all operations of the C2M to be performed without the need for a keyboard interface. For each computer system, a keyboard and track ball shall be provided for use if needed.

3.3.1.4.5. Communication. The contractor shall determine the best suitable communication methods and provide the necessary communication devices for transmitting data between the two computer systems and the APSs (see 3.3.1.3.7). Factors for considerations shall include, but not limited to, the following: spectrum allocation (U.S. versus foreign), interference (from other transmission or jamming), worldwide usability, data encryption (for security), and system commonality (use of existing assets when possible for reduced logistics). Using more than one communication option may be desirable to provide flexibility and redundancy.

3.3.1.4.6. Shelter. C2M shall either be configured inside an International Organization for Standardization Tactical Operations Center (ISO TOC) or a Standardized Integrated Command Post system Rigid Wall Shelter (SICPS RWS). The shelter shall house and protect all the C2M equipment, support equipment and supplies from the damaging effects of the environment and shall provide adequate space for all operator functions and tasks. The support equipment shall include, but not be limited to, the following: interior container lighting, workbench and desktop, mounted racks for computer systems, spare parts and tool storage cabinet, environmental control system for the shelter, power supply, sectional grounding rod, emergency lighting system for shelter, and camouflage cover system. In the case of an AC power outage for the C2M, means shall be provided for backup power to instantaneously kick in, and provide temporary power to the C2M for 12 hours and shall also protect the C2M from AC power surges or noise.

3.3.1.5. RIFTS Automated Trace Locator (RATL). RATL is a portable computer-based planning aid that will be used for trace planning prior to deployment. RATL shall assists the operator in determining the optimum deployment trace, location of pumping stations and associated equipment, and a materials list of components required to install the system. The RATL shall be adaptable to use terrain data such as Digital Terrain Elevation Data (DTED) and as well as incorporating mapping data to provide accurate trace for planning. Once onsite, the planning aid shall be used to refine the deployment location and develop precise pumping station locations. The RATL shall

be capable of running in stand-alone mode or in a networked environment. The RATL shall be capable of uploading the planned trace to the C2M. The RATL shall be developed to operate in Window XP operating system. A laptop type computer shall be dedicated for the RATL.

3.3.2. Other Components.

3.3.2.1. Conduit Repair Kit. The RIFTS shall include a repair kit to perform field repairs of the filled conduit. The repair kits shall include all necessary items (i.e. replacement conduit and couplings, knives, shears, wrenches, sockets, rags, instructions, etc.). No hazardous materials or shelf-life items, except for conduit sections, shall be included in the repair kit. The repair kit shall have the necessary items to perform up to 10 repairs and shall be capable of making 2 simultaneous repairs from pinhole size up to a large (2 ft in length) split. The repair kit shall allow two MOS qualified soldiers (see 3.6) to repair the filled conduit, with the pumping station off, in less than 30 minutes with no degradation in performance.

3.3.2.2. Displacement and Evacuation Kit. The RIFTS shall provide a mean to remove liquid, vapor, and air from the conduit. The conduit shall be emptied prior to recovery by the ERD(s). After displacement, no more than 0.3 percent (%) of fuel by weight of the deployed conduit capacity shall remain. The displacement and evacuation operations shall be completed without damage or degradation of the conduit. If the use of a generator is required as part of the displacement and evacuation process, the kit shall be compatible with the standard military generator (generator will be government furnished).

3.3.2.3. Suspension Kit. The suspension kit shall be used to raise the conduit at road crossings, small streams, and other areas where nestable culverts or road guards may not be used. The kit components shall provide enough material for one 200-foot crossing and shall be contained in storage containers for ease in handling and transport. Assembly of the kit shall not require any special tools.

3.3.2.4. Spill Control Kit. The RIFTS shall include a spill control kit which contains all the materials necessary to clean up two 100-gallon fuel spills.

3.3.2.5. Road Crossing Kit. The RIFTS shall provide enough road crossing guard to protect at least 100 ft. of the specified conduit. It is desirable that the road crossing capability shall not require digging for installation. When properly installed in soft, dry sand, the roadway crossing guard shall not be damaged and shall protect the conduit from any damage resulting from the passage of any vehicles that exert a ground pressure of up to 100 psig. Crossing guard sections shall incorporate a means of mechanically linking sections together so gaps shall not be present or developed, under any loading condition, when two or more sections are used together. Crossing guard sections shall be stackable or capable of being layered to minimize occupation of space when stowed.

3.3.2.6. Major component batteries. All system batteries shall be US Army approved 6T-Series, maintenance-free types IAW ATPD 2206. Unless otherwise specified, Type II shall be used. Batteries shall be readily accessible for service and inspection and shall be of sufficient quantity and type to comply with the system and each major components starting, lighting, normal and surge electrical loads, reserve electrical power capacity, and maintenance requirements, engine, exhaust or electrical equipment during filling.

3.3.2.7. Containers

3.3.2.7.1. Reusable containers. Unless already provided, the non-major and other components of the RIFTS (e.g. adapters, kits), except for roadway crossing guards shall be stowed, handled, and transported in non-metallic reusable containers. Kit peculiar items shall be packaged together within the reusable containers. The non-metallic reusable containers shall have a minimum service life of 10 years, and shall be IAW SAE ARP 1967, modified as follows. All internal supports, fixtures, and attachments used to receive and secure the contained items shall be unaffected by fuel or raw water and shall not absorb fuel (see 3.4.2) and shall have the same anticipated life as the container. A plan indicating component placement within the container shall be provided for each container and secured to the inside of the each container cover. Containers shall have a method for the user to label the contents of the container with a label that can be replaced if user requires a change in the content of the container. All components shall be capable of being loaded manually without the need for any overhead lifting devices. Container closure shall use hand operated self-contained latches. Maximum gross weight of container and contents is 147 lbs. No more than four personnel (see 3.6) shall be required to lift the container and contents without injury to personnel or contents of the container. Air-filling valves, forklift pockets and data plates shall not be required. The reusable container(s) with contents shall also pass the transportability requirements of paragraph 3.4.1. The containers shall be water-vapor-proof and provide physical protection for all contents.

3.3.2.7.2. Storage containers. Except as specified, all RIFTS components (non-major components and all other accessories) shall be delivered and secured within a 8 x 8 x 20 storage container(s); no sliding and bumping of components or accessories shall occur during transportation. All dimensions and structure requirements shall be in accordance with the ISO-1C container(s) as specified in ISO 668 and 1496-1. In addition, the storage containers shall also be compatible with the employment vehicles (see 3.3.3.5). The storage container(s) shall be capable of being handled by the load handling system of the PLS and HEMTT-LHS; Container Handling Unit (CHU) shall not be used. The storage container(s) shall have an A-frame structure at one end with the bail bar, rollers on the opposite end to allow the container be loaded on the PLS trailer, and a rail system to provide the PLS and HEMTT-LHS handling capability. DIN 30722 and STANAG 2413 shall be used for the vehicle interface requirement. A packing and loading plan that provides detailed instructions on packing/repacking the components in the container shall be developed and provided with each container as a durable special instruction

sheet or plate depicting all components and photographs of the container after all components have been packed/repacked inside.

3.3.3. System Performance Requirements. The equipment provided by the contractors shall be able to perform as a full 50-mile RIFTS system.

3.3.3.1. Employment and Retrieval Rate. The RIFTS shall be capable of being emplaced at a minimum rate of 20 miles per 20-hour operational day with a desired emplacement rate of 30 miles per 20-hour operational day. The RIFTS shall be capable of being retrieved at a minimum rate of 10 miles per 20-hour operational day with a desired retrieval rate of 20 miles per 20-hour operational day. The minimum rates for both employment and retrieval shall include all mechanical handling during employment and retrieval operations and shall be maintained over any type of terrain that the employing vehicle is capable of traversing. No more than two employment vehicles shall be used for the emplacement and retrieval processes and no more than one employment vehicle shall be used for APS installation.

3.3.3.1.1. Start Time Definition. The start time for the emplacement process shall begin when all the equipment is off loaded at the start point. The start time for the retrieval process shall begin when the evacuation of hoseline starts.

3.3.3.1.2. Stop Time Definition. The stop time for the emplacement process shall be when the system is ready to issue fluid, this include pre-testing the system prior to system operation. The stop time for the retrieval process shall be when all the system components are returned to the shipping configuration.

3.3.3.1.3. Terrain. Employment and retrieval rates shall be achieved when deployed over the terrain profile as depicted in Figure 1. The movement terrain expected to be encountered by the RIFTS is shown in Table 1.

3.3.3.2. Fluid transfer capability. The system shall be capable of transferring a minimum of 850,000 gallons per 24-hour operational day with a desired transfer capability of 1,000,000 gallons per day (gpd).

3.3.3.3. Anchoring. Proper anchoring shall be provided to prevent the conduit from moving into the roadway while the product is pumping through the line. Movement of the conduit during filling, pressurizing, operation, and evacuation shall be limited or controlled so the conduit does not move into any adjacent roadways.

3.3.3.4. Required Personnel. All installation and tear down processes (i.e. employment, retrieval of the conduit, pumping station installation, C2M installation, and etc) shall not require more than 5 Military Occupational Specialty (MOS) 77F soldiers (see 3.6) per employment vehicle, excluding the driver of the employment vehicle. Employment of the RIFTS over terrain requiring gap and bridge crossings may require additional personnel.

3.3.3.5. Employment Vehicles. All RIFTS modules shall be capable of being loaded and transported on a HEMTT Load Handling System (HEMTT-LHS), Palletized Load System (PLS) truck, and PLS trailer. The ERD shall be capable of being operated while mounted on all vehicles.

3.3.3.6. Configuration. Configuration of the ERD and APS modules shall be compatible with the HEMTT-LHS, PLS, and PLS trailer. Each module shall have the same envelope dimensions and corner fittings of the ISO-1C container as specified in ISO 668 and ISO1161. Each module shall meet all applicable requirements of ISO 1496-1 and 1496-5; specifically, the 9-high stacking capability shall be met. All ERD and APS modules shall be capable of being handled by the PLS and HEMTT-LHS using only the load handling system; Container Handling Unit (CHU) shall not be used. The module shall have an A-frame structure at one end with the bail bar, and rollers on the opposite end to allow the container be loaded on the PLS trailer, and a rail system to provide the PLS and HEMTT-LHS handling capability. DIN 30722 and STANAG 2413 shall be used for the vehicle interface requirement.

3.3.3.6.1. Protective Cover. Protective cover(s) shall be used to enclose the ERDs and the APS for protection during transport and storage. Means shall be provided to ensure the cover is securely attached to each module and shall meet the weather proofness requirement in accordance with (IAW) ISO1496-1. Protective cover is allowed to be removed during operation of the components.

3.3.3.7. Service and Storage Life. The RIFTS shall have a minimum shelf life of at least 15 years with a desire of 20 years. The RIFTS shall have a useful life of at least 10 years with a desire of 15 years once wetted with fuel.

3.3.4. Environmental Requirements. The RIFTS shall operate in hot, basic and cold climates, as defined in AR 70-38. The RIFTS shall be capable of being stored, maintained, and operated under the following environmental conditions.

3.3.4.1. Operational Temperature. The RIFTS shall be capable of continuous operation over the ambient temperature range of -25 degrees F to 135 degrees F.

3.3.4.2. Storage Temperature. The RIFTS, when stored for two years in an open environment or four years in a warehouse environment, shall not be damaged by any ambient temperature from -50 oF to +160 oF with humidity not to exceed 50%.

3.3.4.3. Temperature Shock. The RIFTS System shall be capable of operating after exposure to sudden changes (5 minutes or less) in the

thermal environment from 160F to -60F (71C to -51C) and from -60F to 160F (-51C to 71C). No chemical deterioration shall result from this exposure.

3.3.4.4. Temperature Shock. The RIFTS System shall be capable of operating after exposure to sudden changes (5 minutes or less) in the thermal environment from 160F to -60F (71C to -51C) and from -60F to 160F (-51C to 71C). No chemical deterioration shall result from this exposure.

3.3.4.5. Nuclear, Biological and Chemical (NBC) Protection. RIFTS shall be NBC contamination survivable and capable of operating in an NBC environment. Nuclear survivability is not required. The RIFTS shall be capable of being operated and serviced by personnel wearing Mission Orientated Protective Posture (MOPP IV) chemical, biological and radiological clothing (see 4.2) without special tools or support equipment. The design of the system components shall minimize the collection and retention of contaminants and decontaminates. The system and components shall be decontaminable to negligible risk levels as defined in Army-approved NBC contamination survivability criteria and AR70-75. All seals shall be resistant to the NBC agents and compatible with decontamination procedures and material.

3.3.4.6. Sand. The RIFTS shall perform as specified herein in a blowing sand environment when subjected to a minimum sand concentration of 0.062 0.015 grams per cubic foot (g/ft3) at a minimum wind velocity of 3540 feet per minute (ft/min).

3.3.4.7. Dust. The RIFTS shall perform as specified herein in a blowing dust environment when subjected to a minimum dust concentration of 0.3 0.2 g/ft3 at a minimum wind velocity of 1750 ft/min.

3.3.4.8. Humidity. The RIFTS System shall meet the performance requirements of this document during exposures to relative humidity of up to 95 percent. Material shall not be physically or chemically deteriorated as a result of exposure to the humidity conditions.

3.3.4.9. Solar Radiation. The RIFTS shall perform as specified with up to 355 British thermal units per square foot per hour (Btu/ft2/hr) of solar radiation.

3.3.4.10. Rain. The RIFTS shall perform as specified herein when subjected to a wind driven rainfall of:

a. Rainfall of 4 in/hr (102 mm/hr) for 30 minutes when driven by wind from any direction at velocities up to 40mph (18 m/sec).

b. Rainfall of 2 in/hr (5013 mm/hr) for four hours when driven by wind from any direction at velocities up to 40 mph (18 m/sec).

3.3.4.11. Salt Fog. The RIFTS System shall meet perfor-mance requirements after exposure to salt fog atmosphere. The salt fog atmosphere shall consist of a salt solution defined as 5 percent by weight NaCl and 95 percent by weight distilled water. The exposure zone temperature range shall be 90 F to 95 F. The fog density shall be approximately 3 quarts solution in10 cubic feet of space enclosure. shall withstand damage from being exposed to salt fog

3.3.4.12. Fungus. The RIFTS shall meet perfor-mance requirements after exposure to fungus in a 86 F (30 C) atmosphere with a 95 percent relative humidity for a 28 day duration

3.3.4.13. Altitude. The RIFTS system and components, in storage configuration, shall withstand the low-pressure environment at a minimum altitude of 40,000 ft. The RIFTS shall perform as specified at altitudes up to and including 9,000 ft above sea level at a maximum temperature of 107 F. It shall also retain the system integrity after exposure to a pressure altitude of 40,000 ft.

3.3.4.14. Shock and Vibration. The RIFTS shall withstand shock and vibration induced during vehicular transport over all types of roads and cross-country terrain. The RIFTS shall also withstand shock and vibration associated with ground, rail, sea and air transportation. Individual module in the RIFTS shall also resist shocks encountered in servicing and handling.

3.3.4.15. Noise Limits. Steady-state noise produced by the RIFTS shall not exceed 85 decibels (dB(A)) at the operators position and at occasionally occupied positions (see 4.3).

3.3.4.16. Electromagnetic interference (EMI). The electromagnetic radiated interference and susceptibility characteristics of the RIFTS shall not exceed the limits specified in MIL-STD-461 for Army ground equipment or systems.

3.3.4.17. High-altitude Electromagnetic Pulse (HEMP). The RIFTS shall not exhibit any malfunction or degradation of performance when subjected to the default free-field electromagnetic pulse (EMP) environment IAW MIL-STD-464.

3.3.4.18. Ozone. Unless specified otherwise, all rubber or elastomeric components used on the RIFTS shall be ozone resistant as tested IAW ASTM D1171, Method A, utilizing Ozone-Chamber Exposure Method B with 70-hour exposure time.

3.4. Interface Requirements.

3.4.1. Transportability. The RIFTS shall be capable of being transported by military or commercial tractors, tractor/trailer combinations, trains (rail), marine vessels, and aircraft per MIL-STD-1366 and 3.4.1.6. The RIFTS shall be equipped with tiedowns and slinging provisions. The RIFTS shall be capable of withstanding the impact forces encountered in shipment without damage or permanent deformation for the modes and methods listed below.

Transport configuration.
Ground vehicles
Rail transport
Marine Vessels
Fixed wing
Rotary wing

3.4.1.1. Tiedown Provisions. All individual major RIFTS components shall be equipped with tiedowns provisions IAW MIL-STD-209. The tiedowns provisions shall restrain the components without weld failure, permanent deformation, cracking, loosening, or breaking of the provision or its connecting structural components.

3.4.1.2. Slinging Provisions. All individual major RIFTS components shall be equipped with slinging provisions. Slinging provisions, IAW MIL-STD-209, shall be located so that at least 1-in. clearance is maintained between slings and all exterior parts. Reinforcement may be fastened to members that shall withstand stresses, consistent with the amount and direction of pull. Slinging provisions may also be used as tiedown provisions when such provisions meet the requirements specified in 3.4.1.1.

3.4.1.3. Highway Transport. When transported on commercial or military vehicles, the RIFTS shall be within the highway permit limits for all U.S. states and the general unrestricted transport in NATO countries IAW MIL-STD-1366 regardless of transport mode. This shall apply to both the transport configuration (see 3.4.1) and the individual components when properly positioned and attached on the employment vehicles (see 3.3.3.5).

3.4.1.4. Rail Transport. The RIFTS shall be rail transportable in the U.S. and North Atlantic Treaty Organization (NATO) countries without restriction. The RIFTS shall have a dimensional profile within the Gabarit International de Chargement (GIC) outline diagram (see MIL-STD-1366) when loaded aboard a 50-in high rail car.

3.4.1.4.1. Rail Impact. The RIFTS shall be capable of withstanding shock loads resulting from rail shipment or railroad car impacts as described in MIL-STD-810, without failure, damage, permanent deformation, or reduction in operational or design capability.

3.4.1.5. Marine Transport. The RIFTS shall be transportable by commercial ships and barges, Army landing craft and barges, the Logistics Support Vessel (LSV) and the Landing Craft Utility (LCU).

3.4.1.6. Aircraft Transport.

3.4.1.6.1. Fixed-wing Aircraft. The RIFTS or components shall be internally transportable by C130 fixed-wing aircraft and larger commercial and USAF aircraft in the transport configuration (see MIL-HDBK-1791).

3.4.1.6.2. Rotary-wing Aircraft. It is desirable that the major components, non-major components, and kits be internally (size permitting), and externally (regardless of size) transportable by CH47 rotary-wing aircraft.

3.4.2. Fuel. The RIFTS shall be capable of pumping and the system engines shall be capable of operating on all military and commercial kerosene based fuels conforming to, as a minimum, those listed below without restrictions or kits. JP-8 shall be the designated primary fuel for both the RIFTS pump assemblies and power source.

MIL-DTL-83133 (JP-8) (NATO F-34) (see 4.4)
MIL-DTL-5624 (JP-5) (NATO F-44) (see 4.4)
A-A-52557 (Diesel-military, including NATO F-54) (see 4.4)
ASTM-D975 (Diesel-US commercial)
ASTM-D1655 (Jet A-1/Jet A) (NATO F-35) (see 4.4)
MIL-F-46162 (Type I and II Referee Grade Diesel)

3.4.3. Lubricants. The RIFTS, depending on the ambient temperature, shall use one or more of the following lubricating oils: MIL-PRF-2104, MIL-PRF-46167, and MIL-PRF-21260. Gear oil, if required, shall conform to MIL-PRF-2105, antifreeze to A-A-52624, and grease to MIL-PRF-10924.

3.4.4. Other Systems Compatibility. The RIFTS shall be capable of receiving fuel from and providing fuel to the storage and distribution systems of existing tactical pipeline system, other services, allied nations, and commercial sources.

3.5. Ownership and Support Requirements.

3.5.1. Safety. All electrical wiring and any rotating or reciprocating parts shall be electrically and physically safe, and shall be guarded so as not to be a hazard to operating personnel and to minimize the hazard of fire in the event of a fuel spillage or leakage from conduit and connections. All electrical terminals shall be completely enclosed or insulated to prevent inadvertent contact by personnel or equipment that may cause arcing to occur. An emergency shutoff device shall be located at each of the operator stations for the ERD power unit, the ERD and the pumping station, to completely shut off/stop each one independently in case of accident, malfunction, or potential safety hazard within 5 seconds after activation. Danger or caution signs, labels and markings shall be used to warn of potential or specific hazards.

3.5.2. Environmental Hazard Prevention. In addition to the fuel spill control kit (see 3.3.2.4) and the APS secondary containment, provisions shall be made and included with each unit/system to prevent fluid leakage and safely contain leakage and spillage during all storage, transport and operational use of the RIFTS. RIFTS components shall comply with all US HAZMAT, OHSA, safety, and transportation requirements, regarding prevention of inadvertent fuel discharge or leakage during operation, storage, and maintenance, including evacuation of conduit.

3.5.3. Reliability. The RIFTS APS mean time between hardware essential function failure (MTBHEFF) shall not be less than 2400 hours. The RIFTS C2M mean time between hardware essential function failure (MTBHEFF) shall not be less than 560 hours. The RIFTS pressure reducing station mean time between hardware essential function failure (MTBHEFF) shall not be less than 2900 hours (if applicable). The RIFTS deployment and retrieval reliability shall be a mean cycles between hardware essential function failure of not less than 50 cycles, where one cycle includes the complete deployment and retrieval of one 5 mile conduit set. A 5-mile RIFTS set mean time between hardware essential function failure (MTBHEFF) shall not be less than 600 hours. The reliability numbers are based on a definition of a 5-mile set that has 4 pump stations. (see 4.5)

3.5.4. Maintainability. The RIFTS shall provide easy access to components requiring repair, replacement, routine or frequent maintenance or adjustment. The RIFTS System shall be modular in construction. The mean time to repair (MedTTR) shall not exceed 1.5 hours for all essential unscheduled maintenance demands (EUMD). The maximum time to repair (MAXTTR-90) for 90% of all EUMD shall not exceed 3 hours.

3.5.4.1. Servicing, Operation, and Maintenance. The RIFTS support concept shall use three-level organic maintenance, and shall conform to the requirements and guidance according to AR 750-1, DA Pam 750-35, and DA Pam 738-750. The RIFTS shall require as few special tools or test equipment as possible, and the maximum utilization of existing DoD and US Army tools and support equipment is required. (see 4.6). If required to support the RIFTS, all special tools and test equipment shall be identified and provided by the contractor as part of the RIFTS to assemble, disassemble, maintain, and repair by the designated RIFTS operators and maintainers as required below. Only standard Army test, measurement, and diagnostic equipment (TMDE) are anticipated for the RIFTS. To provide rapid field diagnostic of failures, contractor shall maximize the use of Built-in-Test (BIT) / Built-in-Test equipment (BITE).

3.5.4.2. Operator. All tools, special tools, and test equipment required to perform operator-level Preventive Maintenance Checks and Services (PMCS) shall be provided with each system along with the required stowage space (see 4.7).

3.5.4.3. Operator Test. The operator shall be provided with fault isolation instructions enabling the isolation of critical component failure causes through observation of system operation and the BIT display.

3.5.4.4. Test Points. Sufficient test points shall be incorpo-rated and identified in the major components and modules. The test points shall permit fault isolation without removing protective coatings, breaking solder connections or removing fixed covers and shields.

3.5.5. Lighting. All components of the RIFTS system shall be effectively operable by the operator in reduced visibility, nighttime, and blackout conditions. Lighting shall allow the reading of dials and gages, the reading of item identifications, instructions, and warnings, and the operation of switches and controls, etc. Control panel illumination shall not require dark adaptation by the user.

3.5.5.1. Lighting, non-tactical. Permanent or detachable lighting shall be provided to insure safe operation of the RIFTS in darkness and periods of reduced visibility.

3.5.5.2. Lighting, tactical/blackout operations. Lighting provisions shall meet the following requirements:

Ninety-five % of the light energy emitted by each light source shall be at wavelengths below 700 nanometers.

All light sources shall be dimmable to 0.05 ft-Lamberts (fL) or less. A single on/off blackout switch, labeled BLACKOUT SWITCH, shall control all ERD and APS light sources.

3.5.6. Grounding, Bonding, and Clamps. The RIFTS shall provide complete electrical continuity throughout the system. A metal-to-metal contact shall be provided between the vehicle and the ERD(s), the ERD and any external power source, and the pumping station unit to ground. Provisions shall also be made for the conduit to ensure continuous electrical bond is maintained between the hose ends to

include fittings. Grounding rods and grounding wires equipped with plier-type clamps shall be provided for grounding all appropriate major components (see 3.3.1) during operation and the deployed end of the conduit regardless of deployed conduit length. The grounding wires shall be permanently attached to the ground rods or means shall be provided for attachment, without tools, that will ensure electrical continuity. The grounding rods shall include an integral hammer and anvil, of sufficient size to drive the rods into compact soil. The grounding rods, which may be collapsible, shall be not less than 68 inches long when in operational service configuration.

3.6. Manpower and Personnel Integration (MANPRINT).

3.6.1. Manpower and Personnel: The RIFTS will be constructed, pressure tested, operated, and maintained by the Quartermaster Pipeline and Terminal Operating Company (QTOC). The RIFTS shall not add any additional limitations on the operator or maintainer Military Occupational Specialties (MOSs). The MOS 77F will operate the RIFTS and system components will be maintained and repaired by MOS 63J. The skill level for the MOSs shall be 10 level. DA Pam 611-21 designated the military-trained personnel as follows:

MOS 77F (Petroleum Supply Specialist).
MOS 63J (Quartermaster and Chemical Equipment Repairman).

3.6.2. Human Factors Engineering (HFE): Human factors engineering criteria, principles, and practices shall be considered during design and engineering of the RIFTS, including those related to an effective machine-operator interface. Areas of concern include ease of operation, maintenance, clarity of control and display integration, controls, signals, instructions, labels and markings, safety of operation, anthropometry, and hazard and safety criteria, as applicable. MIL-STD-1472 or commercial equivalent standards may be used for guidance regarding HFE considerations. All features of other RIFTS shall be operable by the 95th percentile male to 5th percentile female. All system controls and equipment shall be easily accessible and operable per specified requirements in all climatic conditions. The RIFTS's control panel, as referenced in Para 3.3.1.2.4., shall contain controls, gauges, indicators, etc., that are easy to read during day/night operations, understand, and use. All features of the RIFTS shall be operable by soldiers wearing cold/wet weather protective clothing and ensemble for Mission Orientated Protective Posture (MOPP) Level IV (see 3.3.4.4 and 4.2.). Operation of one control while wearing protective clothing shall not result in the accidental activation of another control.

3.7. Treatment and Painting. Unless otherwise specified, all external surfaces of the system except as noted below, regardless of the material selected, shall have a finish coat of Chemical Agent Resistant Coating (CARC) paint IAW MIL-C-53039 or water Dispersible Aliphatic Polyurethane, Chemical Agent (Waterborne CARC) paint IAW MIL-DTL-64159. The color shall be Desert Tan 686A, color number 33446 IAW FED-STD-595.

a. The color of all other surfaces, to include those within a housing, those behind insulation material, and the insulation retainer, if used, shall be Desert Tan 686A, color number 33446 or black, color number 37030 IAW FED-STD-595 or the manufacturer standard color, if approved by the Government.

b. The following items shall not be painted: terminal wiring connections, governor linkage, instruction diagrams and plates, rectifiers, relays, switches, circuit interrupters, instrumentation, rubber, lubrication fittings, conduit, couplings, and all other parts whose operation or function would be adversely affected. Insulation material shall be painted unless the sound absorbing characteristics of the material are compromised.

c. Identification plates shall be installed following application of the final finish coat.

d. CARC paint shall not be applied to surfaces that may exceed temperatures of 400F.

3.8. Identification, marking and information. The RIFTS components shall be permanently and legibly marked with the manufacturer's name, part number, and Commercial and Government Entity Code (CAGEC). Unless a separate transportation data plate is provided, the identification shall also include the unit cubic measure and weight. For the APS, the label shall be viewable from the outside without requiring the opening of any doors or access panels.

4. Definitions.

4.1. Employing, Employment, or Emplacement. All wordings such as employ, employing, employment, or emplacement refer to all components and system installation processes. These include laying out conduit, pumping station set up, and etc

4.2. Mission Orientated Protective Posture (MOPP). MOPP IV protection consists of a two piece protective overgarment, protective mask with hood, overboots and rubber gloves with cotton liners. The overgarment is closed and hood is pulled down and adjusted (Field manual FM-3-100).

4.3. Operators and occasionally occupied positions. The operator's position is defined as 24 in. horizontally and 12 in. vertically from the pumping assembly control panel. Occasionally occupied positions are defined as anywhere within a 20-ft diameter around each of the major components but outside a circle of 4-ft diameter around the engine and 55 in. above the ground.

4.4. NATO fuel designations. STANAG 1135 describes the NATO fuel designations F-34, F-35, F-44 and F-54.

4.5. Failure Definition

4.5.1. Essential Functions. Essential functions are the minimum operational tasks that the system must be capable of performing to successfully complete its mission. The loss of an essential function, regardless of when it occurs, will be scored as an essential function failure (EFF).

Emplace Conduit: RIFTS components must allow for the system to be emplaced at a minimum rate of 20 miles per 20 hours day.

Recover Conduit: RIFTS components must allow for the system to be recovered at a minimum rate of 10 miles per 20 hours day.

Transport fuel: The RIFTS must provide for transfer of bulk petroleum at the minimum throughput rate of 850,000 (Threshold) 1,000,000 (Objective) Gallons per 24 hours day. This overall function is dependent on the following essential functions:

Receive/Issue Fuel. The RIFTS must receive fuel from any bulk source and be able to provide fuel to any bulk receiver.

Pump Fuel. The RIFTS pump stations must pump fuel under field conditions at volume and flow rates consistent with the minimum throughput rates.

Provide System Control. The control module must be capable of controlling and monitoring all aspects of RIFTS operation at its pump stations, pressure reducing stations or other components.

Leak Detection: The RIFTS leak detection system must automatically detect and locate leaks of 10 gallons per minute or greater.

4.5.2. Formal Failure Definition. Any event that causes the inability of the RIFTS to perform any of its essential functions will be scored as an essential function failure (EFF). Also, any event that causes the use of the system to be discontinued, to include those events posing threat of serious injury to personnel, equipment, or the environment will also be considered EFF. Any Class 3 or greater fuel leak that cannot be immediately corrected by the operator (within 5 minutes) will be considered an EFF. Routine Operating Procedures, performed by the crew and prescribed in user manuals or which can be performed within 15 minutes using on board tools / Basic Issue Items (BII), will not be scored as an EFF. Examples of Routine Operating Procedures are tightening of easily accessible fittings, clamps, bolts and fasteners. Additional Routine Operating Procedures may be identified as testing progresses and listed in updates to the FDSC. Scoring conference members may later establish limits on Routine Operating Procedures if their frequency adversely affects mission accomplishment. If these limits are exceeded, the events will be recorded and scored on their own merits as failures with associated maintenance demands.

4.6. Special tools and test equipment. Special tools and test equipment are defined as not found in the Armys General Mechanics tool kit (NSN 5180-00-177-7033), Organizational Maintenance Common #1 tool kit (NSN 4910-00-754-0654), Common #2 tool kit (NSN 4910-00-754-0650), and tool kit Supplement #1 (NSN 4910-00-754-0653), and U.S. Army Supply Catalogs 4910-95-A73 and 4910-95-A74. The SKO Supply Catalog website is http://158.2.5.50/codebase/index.html. These kits and other tool kits/sets (US Army) are managed by USA TACOM-Rock Island, AMSTA-AC-CTTS, Rock Island, IL, 61299.

4.7. PMCS. PMCS includes assembly, disassembly, adjustments, maintenance, diagnose and repair or reporting of the condition of the system during the required system service life.

CONTRACT DATA REQUIREMENT LIST

Form Approval OMB No. 0704-0188 Public reporting burden for this collection of information is estimated to average 440 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO.: B. EXHIBIT: C. CATEGORY:
D. SYSTEM/ITEM: RAPIDLY INSTALLED FLUID TRANSFER SYSTEM (RIFTS)
E. CONTRACT/PR NO.: DAAE07-03-C-L090 F. CONTRACTOR: Southwest Research Institute (SwRI)

1. DATA ITEM NO. A001
2. TITLE OF DATA ITEM: COST/SCHEDULE STATUS REPORT (C/SSR)
3. SUBTITLE: Progress Report
4. AUTHORITY: DI-MGMT-81467(T) 5. CONTRACT REFERENCE: C.2.1.1
6. REQUIRING OFFICE: AMSTA-TR-D/210
7. DD 250 REQ: LT 8. APP CODE: 9. DIST. STATEMENT REQUIRED:
10. FREQUENCY: MTHLY 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: SEE BLK 16 13. DATE OF SUBS. SEE BLK 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
AMSTA-TR-D/210 lireb@tacom.army.mil 0/1
AMSTA-AQ-ABGD/321 thorntop@tacom.army.mil 0/1
15. TOTAL: 0/2
16. REMARKS
First submission shall be 30 days after the Integrated Baseline Review.
Subsequent submission due NLT the 10th working day of each month.

1. DATA ITEM NO. A002
2. TITLE OF DATA ITEM: Safety Assessment Report
3. SUBTITLE: SAR
4. AUTHORITY: DI-SAFT-80102B 5. CONTRACT REFERENCE: C.2.2.4.2
6. REQUIRING OFFICE:
7. DD 250 REQ: DD 8. APP CODE: 9. DIST. STATEMENT REQUIRED: REQUIRED
10. FREQUENCY: AS REQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: SEE BLK 16 13. DATE OF SUBS. SEE BLK 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
AMSTA-CS-CZ adamsali@tacom.army.mil 1/1
AMSTA-TR-D/210 lireb@tacom.army.mil 1/1
15. TOTAL: 2/2
16. REMARKS
Draft delivered 120 days prior to training.
Government to review and provide comments 30 days after receipt of draft.
Final SAR delivered NLT 60 days prior to training.

1. DATA ITEM NO. A003
2. TITLE OF DATA ITEM: Performance Specification Documents
3. SUBTITLE:
4. AUTHORITY: DI-SDMP-81465(T) 5. CONTRACT REFERENCE: C.2.2.7.1
6. REQUIRING OFFICE: AMSTA-TR-D/210
7. DD 250 REQ: DD 8. APP CODE: 9. DIST. STATEMENT REQUIRED:
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: SEE BLK 16 13 DATE OF SUBS. SEE BLK 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
AMSTA-TR-D/210 lireb@tacom.army.mil 1 / 1
15. TOTAL: 1 / 1

16. REMARKS The performance specification shall be delivered in an editable and printable digital format (MS Word or equivalent).
Draft performance specification delivered 45 days after user demonstration
Government to review and provide comments 30 days after receipt of draft
Final performance specification delivered 30 days after receipt of Government comments

TAILORING of DI-SDMP-81465(T): Delete para 10.2.2 through 10.2.10 entirely.

1. DATA ITEM NO. A004
2. TITLE OF DATA ITEM: Scientific and Technical Reports
3. SUBTITLE: Final Report
4. AUTHORITY: DI-MISC-80711A 5. CONTRACT REFERENCE: C.2.2.7.2
6. REQUIRING OFFICE: AMSTA-TR-D/210
7. DD 250 REQ: DD 8. APP CODE: 9. DIST. STATEMENT REQUIRED:
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: SEE BLK 16 13. DATE OF SUBS. SEE BLK 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
AMSTA-TR-D/210, ATTN: Ms. Rebecca Li 2 / 2 CDs and 2 hard copies
AMSTA-AQ-ABGD/321, ATTN: Ms. Pamela Thornton, Cover Letter only
15. TOTAL: 2 / 2 CDs and 2 hard copies

16. REMARKS The Final Report shall be delivered in a printable digital format on CD.
Two hard copies of the final version shall also be delivered.
Draft Final Report delivered 75 days after user demonstration
Government to review and provide comments 30 days after receipt of draft
Final Report delivered 30 days after receipt of Government comments

1. DATA ITEM NO. A005
2. TITLE OF DATA ITEM: Conceptual Design Drawings
3. SUBTITLE: As-Built Drawings
4. AUTHORITY:DI-SESS-81001B 5. CONTRACT REFERENCE: 2.2.7.3
6. REQUIRING OFFICE: AMSTA-TR-D/210
7. DD 250 REQ: DD 8. APP CODE: 9. DIST. STATEMENT REQUIRED:
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: SEE BLK 16 13. DATE OF SUBS. SEE BLK 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
AMSTA-TR-D/210, ATTN: Ms. Rebecca Li 0 / 2 CDs and 2 hard copies
15. TOTAL: 0 / 2 CDs and 2 hard copies

16. REMARKS Drawing information is found in Attachment 003
The drawings shall be delivered in a printable digital format on CD.
Two hard copies shall also be delivered.
Drawings delivered at the time the Final report (A004) is due.

1. DATA ITEM NO. A006
2. TITLE OF DATA ITEM: Test Plan
3. SUBTITLE:
4. AUTHORITY:DI-NDTI-80566 5. CONTRACT REFERENCE: C.2.3.1
6. REQUIRING OFFICE: AMSTA-TR-D/210
7. DD 250 REQ: DD 8. APP CODE: 9. DIST. STATEMENT REQUIRED:
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: SEE BLK 16 13. DATE OF SUBS. SEE BLK 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
AMSTA-TR-D/210 lireb@tacom.army.mil 1 / 1
15. TOTAL: 1 / 1

16. REMARKS The Test Plan shall be electronically delivered (email) in an editable and printable digital format.
Draft Test Plan delivered 90 days prior to Test Readiness Review; Government to review and provide comments 30 days after receipt of draft. Test Plan delivered 5 days after receipt of Government comment

1. DATA ITEM NO. A007
2. TITLE OF DATA ITEM: Training Materials
3. SUBTITLE: Training Course Outline
4. AUTHORITY: DI-ILSS-80872(T) 5. CONTRACT REFERENCE: C.2.4.1.1
6. REQUIRING OFFICE:AMSTA-LC-CIFS
7. DD 250 REQ: LT 8. APP CODE: 9. DIST. STATEMENT REQUIRED:
10. FREQUENCY: ASREQ 11. AS OF DATE: SEE BLK 16
12. DATE OF FIRST SUBMISSION: SEE BLK 16 13. DATE OF SUBS. SUB: SEE BLK 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL

LC-LFE/104 manorm@tacom.army.mil	1 / 1
LiReb@tacom.army.mi1	1 / 1
lamkyd@tacom.army.mil	1 / 1
15. TOTAL:	1 / 1

16. REMARKS: Revised training material shall be resubmitted to the Government each time the Government provides changes or updates to the material. Training Outline shall be delivered in an editable and printable digital format.

Submit draft copies of the training course outline 270 days prior to training. The government will review and provide comments within 30 days after receiving the draft outline. Re-submit the revised draft outline incorporating all Government comments within 15 days.

TAILORING of DI-ILSS-80872(T): Para 10.1: Delete first sentence entirely. Second sentence delete "out a need for" and "with a minimum requirement for". Fourth sentence delete "and to insert training malfunctions into the equipment". Para 10.1.1: Delete first sentence entirely. Para 10.2.1 Delete "clinical" from the first sentence. Delete third sentence entirely. Para 10.2.1.1: Delete last sentence entirely. Para 10.2.1.2: Delete paragraph. Para 10.2.1.3: Delete third sentence entirely. Para 10.2.2: Delete sub-para (3) entirely.

1. DATA ITEM NO. A008
2. TITLE OF DATA ITEM: Training Materials
3. SUBTITLE: Lesson Guides
4. AUTHORITY: DI-ILSS-80872(T) 5. CONTRACT REFERENCE: C.2.4.1.2
6. REQUIRING OFFICE:AMSTA-LC-CIFS
7. DD 250 REQ: DD 8. APP CODE: 9. DIST. STATEMENT REQUIRED:
10. FREQUENCY: ASREQ 11. AS OF DATE: SEE BLK 16
12. DATE OF FIRST SUBMISSION: SEE BLK 16 13. DATE OF SUBS. SUB: SEE BLK 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL

LC-LFE/104 manorm@tacom.army.mil	1 / 1
LiReb@tacom.army.mi1	1 / 1
lamkyd@tacom.army.mil	1 / 1
15. TOTAL:	1 / 1

16. REMARKS: Revised training material shall be resubmitted to the Government each time the Government provides changes or updates to the material. Training guides shall be delivered in an editable and printable digital format.
Submit the draft materials 60 days prior to training. The government will review and comment within 30 days.
Re-submit the revised lesson guides to the Government with all incorporated changes within 30 days.

TAILORING of DI-ILSS-80872(T): Para 10.1: Delete first sentence entirely. Second sentence delete "out a need for" and "with a minimum requirement for". Fourth sentence delete "and to insert training malfunctions into the equipment". Para 10.1.1: Delete first sentence entirely. Para 10.2.1 Delete "clinical" from the first sentence. Delete third sentence entirely. Para 10.2.1.1: Delete last sentence entirely. Para 10.2.1.2: Delete paragraph. Para 10.2.1.3: Delete third sentence entirely. Para 10.2.2: Delete sub-para (3) entirely.

1. DATA ITEM NO. A009
2. TITLE OF DATA ITEM: Special Packaging Instructions (SPI)
3. SUBTITLE: Shipping and Storage (S&S) Instructions
4. AUTHORITY: DI-PACK-80121B 5. CONTRACT REFERENCE: C.2.5.2.1
6. REQUIRING OFFICE: AMSTA-LC-CIAP
7. DD 250 REQ: LT 8. APP CODE: 9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: ASREQ 11. AS OF DATE:

12. DATE OF FIRST SUBMISSION: SEE BLK 16 13. DATE OF SUBS. SEE BLK 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
AMSTA-LC-CIAP/268 wolakm@tacom.army.mil 1 / 1
15. TOTAL: 1 / 1

16. REMARKS S&S instructions. Draft shall be submitted 30 days prior to validation. Government to review and provide comments within 15 days of receipt. Contractor shall respond within 20 days after receipt of Government comments. Final Submittal shall be 60 days prior to delivery of the system to the government.

S&S instructions must be submitted electronically in a format that is readable and editable by the Government.(currently MS Word Office 97).

1. DATA ITEM NO. A010
2. TITLE OF DATA ITEM: Meeting Minutes
3. SUBTITLE:
4. AUTHORITY: DI-ADMN-81250A 5. CONTRACT REFERENCE: C.2.1.3.1
6. REQUIRING OFFICE: AMSRD-TAR-D/210
7. DD 250 REQ: DD 8. APP CODE: 9. DIST. STATEMENT REQUIRED:
10. FREQUENCY: AS REQ 11. AS OF DATE: SEE BLK 16
12. DATE OF FIRST SUBMISSION: SEE BLK 16 13. DATE OF SUBS. SUB: SEE BLK 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
LiReb@tacom.army.mil 0 / 1
lamkyd@tacom.army.mil 0 / 1
15. TOTAL: 0 / 2

16. REMARKS: The Contractor shall compile and provide Government approved minutes not later than five (5) days after each meeting. The minutes shall be submitted via email to the addresses in block 14, immediately above.

1. DATA ITEM NO. A011
2. TITLE OF DATA ITEM: Transportability Report
3. SUBTITLE:
4. AUTHORITY: DI-PACK-80880CB 5. CONTRACT REFERENCE: C.2.2.8
6. REQUIRING OFFICE: AMSRD-TAR-D/210
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: See Block 16
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: 60 Day prior to LUT 13. DATE OF SUBS. As Req'd
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
LiReb@tacom.army.mil 1 / 1
lamkyd@tacom.army.mil 1 / 1
15. TOTAL: 2 / 2

16. REMARKS Contractor shall deliver the Draft no later than 60 Days prior to LUT. The Government shall review draft IAW requirements specified in the SOW and provide comments no later than 14 days after receipt.

The Contractor shall incorporate Government Comments within 5 days after receipt and provide the final report to the Government.

1. DATA ITEM NO. A012
2. TITLE OF DATA ITEM: Failure Analysis and Corrective Action Report (FACAR)
3. SUBTITLE:
4. AUTHORITY: DI-RELI-81315 5. CONTRACT REFERENCE: C.2.3.4.3
6. REQUIRING OFFICE: AMSRD-TAR-D/210
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: See Block 16
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: ASREQ DURING PQT/LUT 13. DATE OF SUBS. As Req'd
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
LiReb@tacom.army.mil 1 / 1
lamkyd@tacom.army.mil 1 / 1
15. TOTAL: 2 / 2

16. REMARKS

CDRL REPRESENTS BLOCK 1

A FACAR shall be submitted with the time limits listed below. Submittal requirements are based on the TIR release dates.

Incident Classification	FACAR Submitted Within
Critical	2 working days
Major	10 calendar days
Minor	15 calendar days (only if requested by Government)
Information	20 calendar days (only if requested by Government)

The Failure Analysis and Corrective Action Report shall be formatted and delivered in accordance with DI-RELI-81315, Failure Analysis and Corrective Action Report.

1. DATA ITEM NO. A013
2. TITLE OF DATA ITEM: LMI Summary
3. SUBTITLE: Maintenance Analysis
4. AUTHORITY: DI-ALSS-81530 5. CONTRACT REFERENCE: C.2.5.3.4.1
6. REQUIRING OFFICE: AMSRD-TAR-D/210
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: See Block 16
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: 120 days after ILS Start of Work meeting 13. DATE OF SUBS. As Req'd
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
LiReb@tacom.army.mil 1 / 1
lamkyd@tacom.army.mil 1 / 1
15. TOTAL: 2 / 2

16. REMARKS

As clarified and tailored by Attachment 6 (Maintenance Analysis).
The contractor shall deliver the initial draft LMI Summary within 120 Days after ILS SOW meeting, which is 30 days after award of modification P00004.
The Government will review draft IAW requirements specified in the SOW and provide comments NLT 15 days after receipt. The contractor shall submit corrected initial summary 5 days after receipt of Government comments.

The contractor shall maintain the summary for the life of the contract.
The Government will provide comments at the LOG Demo, PQT and LUT.
The contractor shall incorporate the Government comments from the LOG Demo, PQT and LUT.
The contractor shall deliver a final draft summary with Government comments from the PQT, LD and LUT incorporated within 14 days after the LUT. The Government will review final draft summary IAW requirements specified in the SOW and provide comments NLT 15 days after receipt. The contractor shall submit final corrected summary 5 days after receipt of final Government comments.
Delivery shall be electronic in Microsoft Excel electronic format.

1. DATA ITEM NO. A014
2. TITLE OF DATA ITEM: Maintenance Allocation Chart (MAC)
3. SUBTITLE:
4. AUTHORITY: DI-ALSS-81529 5. CONTRACT REFERENCE: C.2.5.3.5
6. REQUIRING OFFICE: AMSTA-LC-CJA
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: See Block 16
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: See block 16 13. DATE OF SUBS. See block 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES INITIAL DRAFT / DRAFT MAC / REVISED MAC

E-Mail to the following addresses:	LiReb@tacom.army.mil	1 /	1	/	1
	lamkyd@tacom.army.mil	1 /	1	/	1
	15. TOTAL EMAILs:	2 /	2	/	2
Mail CD-Rom to the following address:	U.S. ARMY TACOM AMSTA-LC-CJA	0 /	0	/	1

ATTN: LAURA GREGORY-MAIN
WARREN, MI 48397
15. TOTAL CD-ROMs: 0 / 0 / 1

Deliver hardcopy (paper) to the COR at the PQT 0 / 1 / 0
Deliver hardcopy (paper) to the COR at the LOG DEMO 0 / 1 / 0
Deliver hardcopy (paper) to the COR at the LUT 0 / 1 / 0
15. TOTAL HARDCOPIES: 0 / 3 / 0

16. REMARKS

CDRL REPRESENTS BLOCK I

THE CONTRACTOR SHALL SUBMIT THE INITIAL DRAFT MAINTENANCE ALLOCATION CHART (MAC) 120 DAYS AFTER ILS SOW MEETING.

THE GOVERNMENT WILL REVIEW DRAFT MAC SUBMITTAL IN ACCORDANCE WITH REQUIREMENTS SPECIFIED IN MIL-STD 40051B AND ATTACHMENT 5 AND 6.

THE CONTRACTOR SHALL PROVIDE DRAFT MAC NO LATER THAN 21 DAYS PRIOR TO PRODUCT QUALIFICATION TEST (PQT). GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE PQT. THE CONTRACTOR SHALL INCORPORATE ALL PQT CORRECTIONS AND CHANGES INTO THE REVISED MAC.

THE CONTRACTOR SHALL PROVIDE DRAFT MAC NO LATER THAN 21 DAYS PRIOR TO THE LOGISTICS DEMONSTRATION (LOG DEMO). GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE LOG DEMO. THE CONTRACTOR SHALL INCORPORATE ALL LOG DEMO CORRECTIONS AND CHANGES INTO THE REVISED MAC.

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE PQT AND LOG DEMO.

CONTRACTOR SHALL INCORPORATE ALL LOG DEMO AND PQT CHANGES AND CORRECTIONS, AND SHALL SUBMIT REVISED DRAFT MAC TO GOVERNMENT NO LATER THAN 21 DAYS PRIOR TO THE LIMITED USER TEST (LUT).

THE REVISED MAC SHALL BE INCLUDED IN THE HARD COPY AND THE ELECTRONIC COPY OF THE DA LEVEL DRAFT TECHNICAL MANUAL IN ACCORDANCE WITH MIL-STD 40051B, TO BE USED DURING THE LUT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED REVISED TMS FOR THE LUT.

THE CONTRACTOR SHALL DELIVER ELECTRONIC FILES FOR ALL DRAFT TECHNICAL MANUALS DEVELOPED UNDER THIS CONTRACT. FOR EACH DRAFT ELECTRONIC TECHNICAL MANUAL (ETM) THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF ALL TEXT AND GRAPHICS FILES FOR THE MANUAL(S) IN A FORMAT THAT IS COMPATIBLE WITH WINDOWS, UNLESS OTHERWISE DISCUSSED WITH AND APPROVED IN WRITING BY THE PCO. THE ELECTRONIC SUBMISSIONS SHALL BE EITHER EMAIL OR ON CD-ROM READABLE BY COMPUTERS RUNNING MICROSOFT WINDOWS OR AS ARRANGED IN WRITING WITH THE PCO.

1. DATA ITEM NO. A015
2. TITLE OF DATA ITEM: TECHNICAL MANUALS OPERATOR
3. SUBTITLE:
4. AUTHORITY: DI-MISC-80711A 5. CONTRACT REFERENCE: C.2.5.3.6.1
6. REQUIRING OFFICE: AMSTA-LC-CJA
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: ASREQ 11. AS OF DATE: See block 16
12. DATE OF FIRST SUBMISSION: See block 16 13. DATE OF SUBS. See block 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT TM / REVISED TM

E-Mail to the following addresses: LiReb@tacom.army.mil 1 / 1
lamkyd@tacom.army.mil 1 / 1
15. TOTAL EMAILs: 2 / 2

Mail CD-Rom to the following address: U.S. ARMY TACOM 0 / 1
AMSTA-LC-CJA
ATTN: LAURA GREGORY-MAIN
WARREN, MI 48397
15. TOTAL CD-ROMs: 2 / 2

Deliver hardcopy (paper) to the COR at the PQT 1 / 0
Deliver hardcopy (paper) to the COR at the LOG DEMO 1 / 0
Deliver hardcopy (paper) to the COR at the LUT 1 / 0
15. TOTAL HARDCOPIES: 3 / 0

16. REMARKS

CDRL REPRESENTS BLOCK I

TECHNICAL MANUALS OPERATOR: PREPARE IN ACCORDANCE WITH THIS CDRL AND THE STATEMENT OF WORK, PARAGRAPH C.2.5.3.6.1, AND ATTACHMENT 5.

THE DRAFT TECHNICAL MANUAL (TM) IS DUE 21 NO LATER THAN DAYS PRIOR TO THE PRODUCT QUALIFICATION TEST (PQT). THE GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE PQT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE PQT.

THE DRAFT TECHNICAL MANUAL (TM) IS DUE NO LATER THAN 21 DAYS PRIOR TO THE LOGISTICS DEMONSTRATION (LOG DEMO). THE GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE LOG DEMO. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE LOG DEMO AT NO COST TO THE GOVERNMENT.

CONTRACTOR WILL INCORPORATE ALL PQT AND LOG DEMO COMMENTS AND CORRECTIONS. THE CONTRACTOR SHALL SUBMIT THE REVISED DRAFT TM NO LATER THAN 21 DAYS PRIOR TO THE LIMITED USER TEST (LUT). THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED REVISED TMS FOR THE LUT.

THE CONTRACTOR SHALL DELIVER ELECTRONIC FILES FOR ALL TECHNICAL MANUALS DEVELOPED UNDER THIS CONTRACT. FOR EACH ETM, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF ALL TEXT AND GRAPHICS FILES FOR THE MANUAL(S) IN A NATIVE FORMAT THAT IS COMPATIBLE WITH THE LATEST VERSION OF MICROSOFT WORD FOR WINDOWS, UNLESS OTHERWISE DISCUSSED WITH AND APPROVED IN WRITING BY THE PCO.

THE ELECTRONIC SUBMISSIONS SHALL BE EITHER EMAIL OR ON CD-ROM READABLE BY COMPUTERS RUNNING MICROSOFT WINDOWS OR AS ARRANGED IN WRITING WITH THE PCO.

1. DATA ITEM NO. A016
2. TITLE OF DATA ITEM: TECHNICAL MANUALS FIELD MAINTENANCE
3. SUBTITLE:
4. AUTHORITY: DI-MISC-80711A 5. CONTRACT REFERENCE: C.2.5.3.6.1
6. REQUIRING OFFICE: AMSTA-LC-CJA
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: ASREQ 11. AS OF DATE: See block 16
12. DATE OF FIRST SUBMISSION: See block 16 13. DATE OF SUBS. See block 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT TM / REVISED TM

E-Mail to the following addresses:	LiReb@tacom.army.mil	1	/	1
	lamkyd@tacom.army.mil	1	/	1
	15. TOTAL EMAILs:	2	/	2
Mail CD-Rom to the following address:	U.S. ARMY TACOM AMSTA-LC-CJA ATTN: LAURA GREGORY-MAIN WARREN, MI 48397	0	/	1
	15. TOTAL CD-ROMs:	2	/	2
Deliver hardcopy (paper) to the COR at the PQT		1	/	0
Deliver hardcopy (paper) to the COR at the LOG DEMO		1	/	0
Deliver hardcopy (paper) to the COR at the LUT		1	/	0
	15. TOTAL HARDCOPIES:	3	/	0

16. REMARKS

CDRL REPRESENTS BLOCK I

TECHNICAL MANUALS FIELD LEVEL: PREPARE IN ACCORDANCE WITH THIS CDRL AND THE STATEMENT OF WORK, PARAGRAPH C.2.5.3.6.1, AND ATTACHMENT 5.

THE DRAFT TECHNICAL MANUAL (TM) IS DUE NO LATER THAN 21 DAYS PRIOR TO THE PRODUCT QUALIFICATION TEST (PQT). THE GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE PQT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE PQT.

THE DRAFT TECHNICAL MANUAL (TM) IS DUE NO LATER THAN 21 DAYS PRIOR TO THE LOGISTICS DEMONSTRATION (LOG DEMO). THE GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE LOG DEMO. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE LOG DEMO.

CONTRACTOR SHALL INCORPORATE ALL PQT AND LOG DEMO COMMENTS AND CORRECTIONS. THE CONTRACTOR SHALL SUBMIT THE REVISED DRAFT TM NO LATER THAN 21 DAYS PRIOR TO THE LIMITED USER TEST (LUT). THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED REVISED TMS FOR THE LUT.

THE CONTRACTOR SHALL DELIVER ELECTRONIC FILES FOR ALL TECHNICAL MANUALS DEVELOPED UNDER THIS CONTRACT. FOR EACH ETM, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF ALL TEXT AND GRAPHICS FILES FOR THE MANUAL(S) IN A NATIVE FORMAT THAT IS COMPATIBLE WITH THE LATEST VERSION OF MICROSOFT WORD FOR WINDOWS, UNLESS OTHERWISE DISCUSSED WITH AND APPROVED BY THE PCO.

THE ELECTRONIC SUBMISSIONS SHALL BE EITHER EMAIL OR ON CD-ROM READABLE BY COMPUTERS RUNNING MICROSOFT WINDOWS OR AS ARRANGED IN WRITING WITH THE PCO.

1. DATA ITEM NO. A017
2. TITLE OF DATA ITEM: TECHNICAL MANUAL RPSTL
3. SUBTITLE:
4. AUTHORITY: DI-MISC-80711A 5. CONTRACT REFERENCE: C.2.5.3.6.2
6. REQUIRING OFFICE: AMSTA-LC-CJA
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: ASREQ 11. AS OF DATE: See block 16
12. DATE OF FIRST SUBMISSION: See block 16 13. DATE OF SUBS. See block 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT RPSTL / REVISED RPSTL

E-Mail to the following addresses:	LiReb@tacom.army.mil	1	/	1
	lamkyd@tacom.army.mil	1	/	1
	15. TOTAL EMAILs:	2	/	2
Mail CD-Rom to the following address:	U.S. ARMY TACOM AMSTA-LC-CJA ATTN: LAURA GREGORY-MAIN WARREN, MI 48397	0	/	1
	15. TOTAL CD-ROMs:	0	/	1
Deliver hardcopy (paper) to the COR at the PQT		1	/	0
Deliver hardcopy (paper) to the COR at the LOG DEMO		1	/	0
Deliver hardcopy (paper) to the COR at the LUT		1	/	0
	15. TOTAL HARDCOPIES:	3	/	0

16. REMARKS

PREPARE IN ACCORDANCE MIL-STD 40051B CHANGE 1, THE SCOPE OF WORK PARAGRAPH C.2.5.3.6.2, ATTACHMENT 7 AND THIS CDRL.

THE DRAFT TECHNICAL MANUAL (TM) RPSTL (REPAIR PARTS SPECIAL TOOLS LIST) IS DUE NO LATER THAN 21 DAYS PRIOR TO THE PRODUCT QUALIFICATION TEST (PQT). THE GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE PQT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE PQT.

THE DRAFT TECHNICAL MANUAL RPSTL IS DUE NO LATER THAN 21 DAYS PRIOR TO THE LOGISTICS DEMONSTRATION (LOG DEMO). GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE LOG DEMO. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE LOGDEMO.

CONTRACTOR SHALL INCORPORATE ALL PQT AND LOG DEMO CORRECTIONS AND COMMENTS AND PROVIDE A REVISED DRAFT TM RPSTL NO LATER THAN 21 DAYS BEFORE LIMITED USER TEST (LUT). THE GOVERNMENT WILL PROVIDE COMMENTS AT THE LUT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED REVISED TMS FOR THE LUT.

THE CONTRACTOR SHALL DELIVER ELECTRONIC FILES FOR ALL TECHNICAL MANUALS DEVELOPED UNDER THIS CONTRACT. FOR EACH ETM, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF ALL TEXT AND GRAPHICS FILES FOR THE MANUAL IN A FORMAT THAT IS COMPATIBLE WITH THE LATEST VERSION OF MICROSOFT WORD FOR WINDOWS, ON CD-ROM, UNLESS OTHERWISE APPROVED IN WRITING BY THE PCO. ALL DRAFT COPIES OF THE TM WILL BE SUBMITTED BY LETTER OF TRANSMITTAL.

1. DATA ITEM NO. A018
2. TITLE OF DATA ITEM: LMI DATA PRODUCT
3. SUBTITLE: BASIC ISSUE ITEMS LIST (BIIL)
4. AUTHORITY: DI-ALSS-81529 5. CONTRACT REFERENCE: C.2.5.3.6.3
6. REQUIRING OFFICE: AMSTA-LC-CJA
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: ASREQ 11. AS OF DATE: See block 16
12. DATE OF FIRST SUBMISSION: See block 16 13. DATE OF SUBS. See block 16

14. DISTRIBUTION/ A. ADDRESSEE		B. COPIES	INITIAL	DRAFT	REVISED
E-Mail to the following addresses:	LiReb@tacom.army.mil		1	1	1
	lamkyd@tacom.army.mil		1	1	1
		15. TOTAL EMAILs:	2	2	2
Mail CD-Rom to the following address:	U.S. ARMY TACOM AMSTA-LC-CJA ATTN: LAURA GREGORY-MAIN WARREN, MI 48397		0	0	1
		15. TOTAL CD-ROMs:	0	0	1
Deliver hardcopy (paper) to the COR at the	PQT		0	1	0
Deliver hardcopy (paper) to the COR at the	LOG DEMO		0	1	0
Deliver hardcopy (paper) to the COR at the	LUT		0	1	0
		15. TOTAL HARDCOPIES:	0	3	0

16. REMARKS

CDRL REPRESENTS BLOCK I

THE INITIAL DRAFT BASIC ISSUE ITEMS LIST (BIIL) SHALL BE SUBMITTED 120 DAYS AFTER THE DATE OF ILS SOW MEETING, SEE ATTACHMENT 5.

THE GOVERNMENT WILL REVIEW THE INITIAL DRAFT BIIL IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE SCOPE OF WORK, PARAGRAPH C.2.5.3.6.3 AND ATTACHMENT 5. THE GOVERNMENT WILL PROVIDE COMMENTS WITHIN 21 DAYS AFTER RECEIPT OF THE INITIAL DRAFT BIIL.

THE CONTRACTOR SHALL SUBMIT A DRAFT BIIL NO LATER THAN 21 DAYS BEFORE THE PRODUCT QUALIFICATION TEST (PQT). THE GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE PQT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE PQT.

THE CONTRACTOR SHALL SUBMIT A DRAFT BIIL NO LATER THAN 21 DAYS BEFORE THE LOGISTICS DEMONSTRATION (LOG DEMO). THE GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE LOG DEMO. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE LOG DEMO.

THE CONTRACTOR SHALL INCORPORATE ALL PQT AND LOG DEMO COMMENTS AND CORRECTIONS. THE CONTRACTOR SHALL INCORPORATE THE BIIL INTO THE TECHNICAL MANUALS AS REQUIRED BY THE SOW AT C.2.5.3.6.2.

THE CONTRACTOR SHALL SUBMIT THE REVISED DRAFT BIIL NO LATER THAN 21 DAYS PRIOR TO THE LIMITED USER TEST (LUT). THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED REVISED TMS FOR THE LOGDEMO.

THE ELECTRONIC SUBMISSIONS SHALL BE EITHER EMAIL OR ON CD-ROM READABLE BY COMPUTERS RUNNING MICROSOFT WINDOWS OR AS ARRANGED IN WRITING WITH THE PCO.

1. DATA ITEM NO. A019
2. TITLE OF DATA ITEM: LMI DATA PRODUCT
3. SUBTITLE: COMPONENT OF END ITEMS LIST (COEI)
4. AUTHORITY: DI-ALSS-81529 5. CONTRACT REFERENCE: C.2.5.3.6.4
6. REQUIRING OFFICE: AMSTA-LC-CJA
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: ASREQ 11. AS OF DATE: See block 16
12. DATE OF FIRST SUBMISSION: See block 16 13. DATE OF SUBS. See block 16

14. DISTRIBUTION/ A. ADDRESSEE		B. COPIES	INITIAL	DRAFT	REVISED
E-Mail to the following addresses:	LiReb@tacom.army.mil		1	1	1
	lamkyd@tacom.army.mil		1	1	1
		15. TOTAL EMAILs:	2	2	2
Mail CD-Rom to the following address:	U.S. ARMY TACOM AMSTA-LC-CJA ATTN: LAURA GREGORY-MAIN WARREN, MI 48397		0	0	1
		15. TOTAL CD-ROMs:	0	0	1
Deliver hardcopy (paper) to the COR at the	PQT		0	1	0
Deliver hardcopy (paper) to the COR at the	LOG DEMO		0	1	0

Deliver hardcopy (paper) to the COR at the LUT 0 / 1 / 0
15. TOTAL HARDCOPIES: 0 / 3 / 0

16. REMARKS

CDRL REPRESENTS BLOCK I

THE CONTRACTOR SHALL SUBMIT THE INITIAL DRAFT COMPONENT OF END ITEMS (COEI) LIST NO LATER THAN 120 DAYS AFTER THE ILS SOW MEETING.

THE COEI SHALL BE PREPARED IN ACCORDANCE WITH ATTACHMENT 5 AND SCOPE OF WORK PARAGRAPH C.2.5.3.6.4. THE CONTRACTOR SHALL SUBMIT COMMERCIAL ITEM DESCRIPTIONS AND DRAWINGS FOR EACH ITEM ON THE COEI.

GOVERNMENT WILL PROVIDE COMMENTS WITHIN 21 DAYS AFTER RECEIPT OF THE INITIAL DRAFT COEI.

THE CONTRACTOR SHALL SUBMIT A DRAFT COEI NO LATER THAN 21 DAYS BEFORE THE PRODUCT QUALIFICATION TEST (PQT). THE GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE PQT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE PQT.

THE CONTRACTOR SHALL SUBMIT A DRAFT COEI NO LATER THAN 21 DAYS BEFORE THE LOGISTICS DEMONSTRATION (LOG DEMO). THE GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE LOG DEMO. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE LOG DEMO.

THE CONTRACTOR SHALL INCORPORATE ALL COMMENTS AND CORRECTIONS FROM THE PQT AND LOGDEMO AND SUBMIT A REVISED DRAFT COEI TO GOVERNMENT NO LATER THAN 21 DAYS PRIOR TO THE LIMITED USER TEST (LUT). GOVERNMENT WILL PROVIDE COMMENTS AT THE LUT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED REVISED TMS FOR THE LUT.

THE CONTRACTOR SHALL INCORPORATE THE DRAFT COEI WITH COMMERCIAL ITEM DESCRIPTIONS AND DRAWINGS INTO THE TECHNICAL MANUALS AS REQUIRED BY THE SOW AT C.2.5.3.6.4.

THE ELECTRONIC SUBMISSIONS SHALL BE EITHER EMAIL OR ON CD-ROM READABLE BY COMPUTERS RUNNING MICROSOFT WINDOWS OR AS ARRANGED IN WRITING WITH THE PCO.

1. DATA ITEM NO. A020
2. TITLE OF DATA ITEM: LMI DATA PRODUCT
3. SUBTITLE: SUPPORT EQUIPMENT TOOLS AND TEST EQUIPMENT (STTE).
4. AUTHORITY: DI-ALSS-81530 5. CONTRACT REFERENCE: C.2.5.3.6.5
6. REQUIRING OFFICE: AMSTA-LC-CJA
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: ASREQ 11. AS OF DATE: See block 16
12. DATE OF FIRST SUBMISSION: See block 16 13. DATE OF SUBS. See block 16
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES INITIAL DRAFT / DRAFT / REVISED

E-Mail to the following addresses: LiReb@tacom.army.mil 1 / 1 / 1
lamkyd@tacom.army.mil 1 / 1 / 1
15. TOTAL EMAILs: 2 / 2 / 2

Mail CD-Rom to the following address: U.S. ARMY TACOM 0 / 0 / 1
AMSTA-LC-CJA
ATTN: LAURA GREGORY-MAIN
WARREN, MI 48397
15. TOTAL CD-ROMs: 0 / 0 / 1

Deliver hardcopy (paper) to the COR at the PQT 0 / 1 / 0
Deliver hardcopy (paper) to the COR at the LOG DEMO 0 / 1 / 0
Deliver hardcopy (paper) to the COR at the LUT 0 / 1 / 0
15. TOTAL HARDCOPIES: 0 / 3 / 0

16. REMARKS

CDRL REPRESENTS BLOCK I

THE CONTRACTOR SHALL SUBMIT THE INITIAL DRAFT SUPPORT EQUIPMENT TOOLS AND TEST EQUIPMENT (STTE) LIST NO LATER THAN 120 DAYS AFTER THE ILS SOW MEETING.

THE GOVERNMENT WILL PROVIDE COMMENTS WITHIN 21 DAYS AFTER RECEIPT OF THE INITIAL DRAFT STTE.

THE CONTRACTOR SHALL SUBMIT A DRAFT STTE NO LATER THAN 21 DAYS BEFORE PRODUCT QUALIFICATION TEST (PQT). THE GOVERNMENT WILL PROVIDE COMMENTS AND CORRECTIONS AT THE PQT. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE PQT.

THE CONTRACTOR SHALL SUBMIT A DRAFT STTE NO LATER THAN 21 DAYS BEFORE LOGISTICS DEMONSTRATION (LOG DEMO). THE GOVERNMENT WILL PROVIDE COMMENTS AT THE LOG DEMO. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED DRAFT TMS FOR THE LOG DEMO.

THE CONTRACTOR SHALL INCORPORATE THE STTE INFORMATION INTO THE TECHNICAL MANUALS.

THE CONTRACTOR SHALL SUBMIT THE REVISED DRAFT STTE, INCORPORATING ALL PQT AND LOG DEMO COMMENTS AND CORRECTIONS, NO LATER THAN 21 DAYS PRIOR TO THE LIMITED USER TEST (LUT). THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED REVISED TMS FOR THE LUT.

THE ELECTRONIC SUBMISSIONS SHALL BE EITHER EMAIL OR ON CD-ROM READABLE BY COMPUTERS RUNNING MICROSOFT WINDOWS OR AS ARRANGED IN WRITING WITH THE PCO.

1. DATA ITEM NO. A021
2. TITLE OF DATA ITEM: System Support Package Component List (SSPCL)
3. SUBTITLE: PQT and LUT
4. AUTHORITY: DI-ILSC-80532 5. CONTRACT REFERENCE: C.2.5.3.7
6. REQUIRING OFFICE: AMSTA-TAR-D/210
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: See block 16
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: 90 Days prior to PQT 13. DATE OF SUBS. ASREQ
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
LiReb@tacom.army.mil 1 / 1
lamkyd@tacom.army.mil 1 / 1
15. TOTAL: 2 / 2

16. REMARKS:

CDRL REPRESENTS BLOCK I

The contractor shall submit Draft SSPCL NLT 90 days prior to PQT.
Government Review and comment to be completed NLT 14 days after draft receipt.
The contractor shall submit the final SSPCL with Government comments incorporated NLT 7 days after completion of Government review and comment.

1. DATA ITEM NO. A022
2. TITLE OF DATA ITEM: System Support Package Component List (SSPCL)
3. SUBTITLE: LD
4. AUTHORITY: DI-ILSC-80532 5. CONTRACT REFERENCE: C.2.5.3.7
6. REQUIRING OFFICE: AMSTA-TAR-D/210
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: See block 16
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: 90 Days prior to LD 13. DATE OF SUBS. ASREQ
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
LiReb@tacom.army.mil 1 / 1
lamkyd@tacom.army.mil 1 / 1
15. TOTAL: 2 / 2

16. REMARKS:

CDRL REPRESENTS BLOCK I

The contractor shall submit Draft SSPCL NLT 90 days prior to LD.
Government Review and comment to be completed NLT 14 days after draft receipt.
The contractor shall submit Final SSPCL with Government comments incorporated NLT 7 days after completion of Government review and comment.

1. DATA ITEM NO. A023
2. TITLE OF DATA ITEM: Scientific and Technical Reports
3. SUBTITLE: LD Plan
4. AUTHORITY: DI-MISC-80711A 5. CONTRACT REFERENCE: C.2.5.3.8.1
6. REQUIRING OFFICE: AMSTA-TAR-D/210
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: See block 16
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: 90 Days prior to Log Demo 13. DATE OF SUBS. ASREQ
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
LiReb@tacom.army.mil 1 / 1
lamkyd@tacom.army.mil 1 / 1
15. TOTAL: 2 / 2

16. REMARKS:

CDRL REPRESENTS BLOCK I

Draft Logistics Demonstration (LD) plan shall be delivered 90 days prior to Log Demo.
The Government shall review draft plan IAW requirements specified in the SOW and provide comments NLT 14 days after receipt.
The contractor shall submit corrected plan no later than 7 days after receipt of government comments.

1. DATA ITEM NO. A024
2. TITLE OF DATA ITEM: LMI Summary
3. SUBTITLE: NMWR Candidate List
4. AUTHORITY: DI-ALSS-81530 5. CONTRACT REFERENCE: C.2.5.3.4.1.1 c
6. REQUIRING OFFICE: AMSTA-TAR-D/210
7. DD 250 REQ: DD 8. APP CODE: A 9. DIST. STATEMENT REQUIRED: See block 16
10. FREQUENCY: ASREQ 11. AS OF DATE:
12. DATE OF FIRST SUBMISSION: 210 Days After Award of modification P00004 13. DATE OF SUBS. ASREQ
14. DISTRIBUTION/ A. ADDRESSEE B. COPIES DRAFT / FINAL
LiReb@tacom.army.mil 1 / 1
lamkyd@tacom.army.mil 1 / 1
15. TOTAL: 2 / 2

16. REMARKS:

CDRL REPRESENTS BLOCK I

The Contractor shall deliver the initial draft NMWR Candidate List no later than 210 days after Contract award.

The Government will review draft IAW requirements specified in the SOW and provide comments NLT 14 days after receipt.

The contractor shall submit corrected List no later than 30 days prior to PQT.

PUBLICATIONS REQUIREMENTS

1. PREPARATION INSTRUCTIONS.

The contractor shall deliver Technical Manuals for the Product Qualification Test (PQT) Logistics Demonstration (Log Demo) and Limited User Test (LUT). Manuals at the LUT shall include all changes resulting from the Government's reviews and tests as well as the contractor's quality reviews and edits. Illustrations shall be inked and all callouts and text shall be typeset-type. Manual delivery shall include copies of manuals in necessary quantities for both Log Demo and LUT, each produced back to back, collated and assembled and drilled for standard three-hole punch.

2. SPECIFICATIONS.

MIL-HDK-1222B is available for guidance. The contractor shall use the latest version at date of award. Copies can be obtained at web site: www.logsa.army.mil:80/mil40051/menu.htm

3. CLARIFICATIONS:

a. All illustrations shall be line drawings. If prescreened photographs and halftones are used, the contractor must assure delivery of clear legible illustrations after reproduction.

b. Operation and maintenance illustrations shall be isometric and provide view as seen by the user. Illustrations shall appear on the same, or facing, page as the applicable text. The quantity and type of illustrations used must allow the user to locate items and operate and maintain the equipment in an accurate and efficient manner.

c. The contractor shall incorporate appropriate lubrication instructions, if applicable, into the Operator and Unit Preventive Maintenance Checks and Services (PMCS) at the applicable hard time intervals per MIL-STD-40051B.

d. The contractor shall prepare a Field Level PMCS per MIL-STD-40051B. The checks and services must only require easy-to-use common tools that are included in the Basic Issue Items furnished with and stored on the vehicle during operation.

e. PMCS will include intervals such as: before, during, after, weekly and monthly, as applicable. As well as including intervals such as: quarterly, semiannually, or annually.

f. The contractor shall develop a Maintenance Allocation Chart (MAC) per MIL-STD-40051B. The MAC shall be in the system's assembly/subassembly sequence to conform to the technical. The contractor shall update the MAC throughout the performance period of the work directive, including the results of the contractor's analysis, system testing, government demonstration and testing, review of test results, and user comments. In partnership with the Original Equipment Manufacturer (OEM), the contractor shall perform an analysis to identify the extent of repair for each potentially repairable item and recommend the maintenance level to perform the work within the Army Maintenance System (AR 750-1). The above regulation can be found at the following WEB address:

http://www.atsc-army.org/cgi-bin/atdl.dll/ar/750-1/ar7501toc.htm

Variables such as item price, parts prices, failure rates of repairable items and piece parts, labor costs, and the cost of special tools and equipment shall be considered.

g. The contractor shall prepare Components of End Item (COEI) and Basic Issue Items (BIIL) lists per MIL-STD-40051B.

h. The contractor shall prepare Test measurement and Diagnostic Equipment (TMDE) per MIL-STD-40051B.

i. The contractor shall prepare an Additional Authorized List (AAL) per MIL-STD-40051B.

j. The contractor shall prepare an Appendix A, References, per MIL-STD-40051B.

k. The contractor shall prepare a parts cross-reference list showing the Manufacturer's CAGE Code and Part Number, Vendor CAGE Code and Part Number.

4. QUALITY ASSURANCE.

a. The contractor is responsible for the quality of all TMs, and electronic files delivered under this work directive. The contractor shall incorporate effective processes to develop, test and inspect the deliverables of this work. They shall ensure the technical accuracy, usability, completeness, and consistency of the deliverables of this work directive.

b. The contractor shall support In Process Reviews (IPR) by providing samples of work accomplished to date. They shall also provide evidence of improvements to manual development processes required as a result of past IPR or review comments.

c. The Government may use the TMs when testing the end items to determine their accuracy and usability.

d. The Government will evaluate the TMs for compliance with contract requirements, and will determine acceptance based on the evaluation. The Government's usability standard for acceptance, in addition to the requirements previously stated, will be based on the determination that all information is presented in a manner that can be easily identified, found, read and understood. This includes illustration support where needed.

e. If at any time the Government discovers errors or deficiencies in the contractor's deliverables; the contractor shall correct them at no additional cost.

5. GOVERNMENT FURNISHED INFORMATION (GFI).

a. The Government will provide the following information at the Start of Work meeting (if available): the technical manual number, end item NSN, official nomenclature, and distribution statement.

b. The Government will provide updated Army regulations and technical manual numbers and titles for inclusion in Appendix A, References

6. REFERENCE.

The contractor may use the MIL-HDBK-1222B for guidelance and examples of the technical manual and supplemental data content and format. It includes information on technical manual preparation, including assembly, introductory information, theory, operation, troubleshooting, maintenance, repair parts and special tools lists and supporting information previously contained in numerous, separate detailed specifications and standards.

Maintenance Analysis

SUMMARY TITLE: Maintenance Analysis

SPECIFIC INSTRUCTIONS: The contractor shall document a Maintenance Analysis Summary for the system. This summary will identify field level repairable item and may be used to verify that the maintenance actions and support structure are aligned with the government's requirements and maintenance concept. The repairable items should be identified by end item hardware, breakdown/disassembly sequence. The summary should identify all preventive and corrective maintenance actions along with the required spares and support equipment to perform each maintenance task. The Annual Maintenance Man-hour data will be used to prepare the BOIP Feeder Data. The summary data can also be used to develop the Maintenance Allocation Chart (MAC).

DATA IN LMI SPECIFICATION (Please provide the data product title):

_____ _____ _____

_____ _____ _____

DATA NOT IN LMI SPECIFICATION (Please provide the data product title, its definition and its format):

Title: Maintenance Analysis.
Required Data Elements:
Indenture Code
Component/Assembly Name
Component Part Number & Commercial And Government Entity Code (CAGEC)
Maintenance Function/Task
Source, Maintenance & Recoverability (SMR) Code
Task Time
Task Frequency (annual)
Level of Maintenance (Field Level)
*Military Occupational Specialty (MOS)
Annual Maintenance Man-hours (AMMH)

Additional data elements may be added at the contractor's discretion.

Format: Contractor's format using Microsoft Excel

*Government Provided.

SUMMARY LAYOUT Contractor Provided

RPSTL INSTRUCTIONS

1. PREPARATION INSTRUCTIONS. The contractor shall prepare and deliver the RPSTL or instruction In Accordance With (IAW) the requirements, quantities, and schedules set forth in the Contract Data Requirements Lists (DD Form 1423) and this attachment.

2. SPECIFICATIONS. The following specifications shall apply. Contractor shall use latest edition available at time of award.

a. MIL STD-40051B(TM) (Notice 1 dated 30 Oct 01), Preparation of Digital Technical Information for Multi-Output Presentation of Technical Manuals.

b. MIL STD 40051-5B(TM), Technical Manuals, Parts Information (PI) and RPSTL.

c. MIL STD 38784(TM) (Notice 2 dated 1 Dec 00) Military Specification Manuals, Technical: General Style and Format Requirements.

d. TB 750 93 1 (with Change 5, dated 27 Jun 1983) Functional Grouping Codes (FGC): Combat, Tactical, and Support Vehicles and Special Purpose Equipment.

e. MIL HDBK 38790 (24 Feb 97), Printing Production of Technical Manuals, General Requirements for.

f. MIL HDBK-1222A (Notice 1 dated 15 Feb 01), Guide to the General Style and Format of U.S. Army Work Package Technical Manuals.

3. Separate RPSTL TM shall be developed.

All FGCs, including Subgroup codes, listed in the Maintenance Allocation Chart (MAC) that are applicable to the maintenance level of the RPSTL shall be listed in the table of contents.

The Repair Parts List shall be in ascending numerical order by functional groups as listed in the MAC. Group numbers shall be assigned IAW TB 750 93 1. Figures shall be numbered in ascending sequence throughout the manual.

Only information essential to identifying the assembly or part shall be added (such as "left", "right", "make from," etc.) Exceptions can be made for the following: bolts and screws shall include the size, length, thread class and grade, following the item name. When an assembly is the last item in a given figure and its repair parts are illustrated in the figure immediately following, the parts shall be indented one space more than the assembly.

Kit listing shall be in a separate FGC titled "GROUP 9401 REPAIR KITS". Kits shall fall out in ascending alphanumeric part number sequence (an automatic sort from correct data entry) and shall not be assigned item numbers.

Kit repair parts shall be listed with their applicable figure and appear in item number sequence. The statement "PART OF KIT P/N (kit P/N)" shall follow the item name. This statement appears automatically through correct use of the provisioning and RPSTL data entry process.

Only one FGC shall appear in a figure. The headers for lists shall be all caps and shall contain the same basic wording and information as the associated figure title and functional group title used in the MAC and TB 750 93 1. Figure numbers and titles on illustrations shall be upper case for the first letter of principle words.

4. DELIVERY SCHEDULE. Deliver RPSTL products IAW DD Form 1423.

5. GOVERNMENT FURNISHED INFORMATION. The Government will furnish the following information:

a. TM Number and TM Code.

b. National Stock Number (NSN).

6. QUALITY ASSURANCE/QUALITY CONTROL.

a. You shall be responsible for the quality of the RPSTL and for developing effective processes to develop, test and inspect the deliverables, ensuring technical accuracy, usability, completeness (within the scope of the

contract), consistency and generally meet contract requirements prior to delivery.

b. You shall support In Process Reviews (IPRs) by providing samples of work accomplished to date or other requested data and identify improvements to your manuals, data or QA process required as a result of IPR comments. We may witness your validation of the supplemental data and ETMs.

c. We may use the RPSTL when testing the end item(s) to determine their accuracy and usability.

d. We will evaluate the RPSTL for compliance to contract requirements to determine acceptance. Our usability standard for acceptance of a TM, in addition to requirements already stated, will be based on our determination that all information is presented in such a way that it can be easily identified and found, read and understood, and includes illustration support where needed.

e. If we find errors or deficiencies in your deliveries during our reviews or testing, you shall correct them at no additional cost to us.